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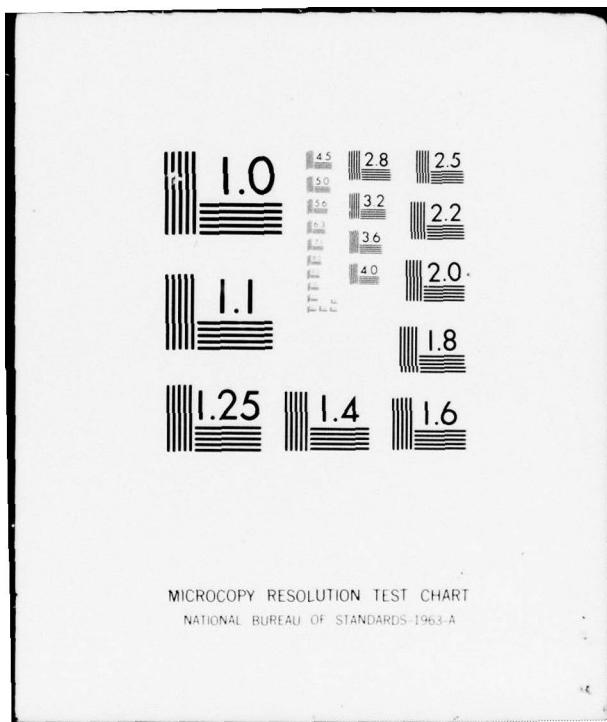
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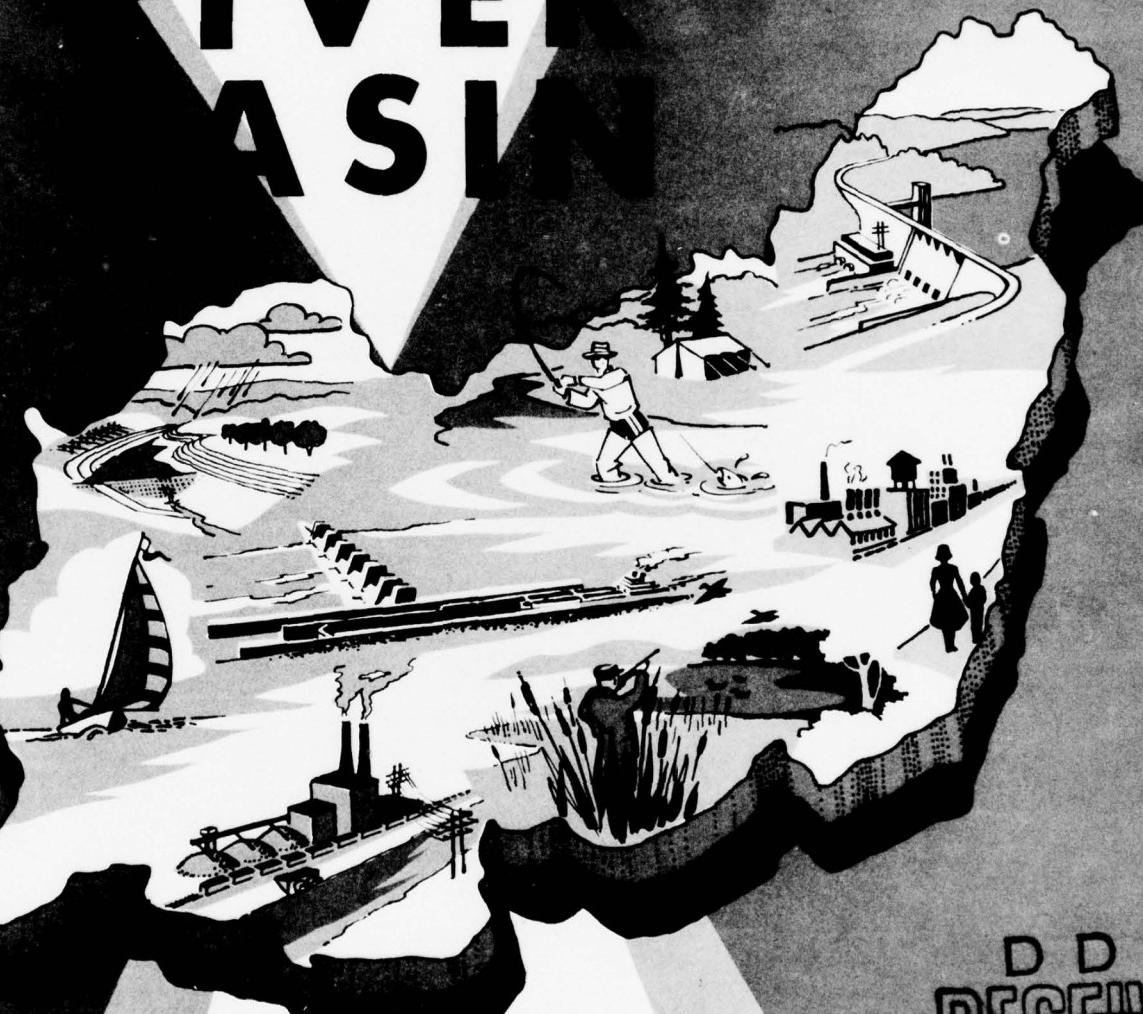


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VOLUME IX

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OHIO RIVER BASIN



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COMPREHENSIVE SURVEY

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Appendix H FORMAL REVIEW DRAFT OUTDOOR RECREATION

U.S. ARMY ENGINEER DIVISION, OHIO RIVER-CINCINNATI, OHIO

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JUL 7 1977
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Prepared by
Bureau of Outdoor Recreation,
U.S. Department of Interior
in cooperation with Departments
of Agriculture; Army; Commerce;
Health, Education, and Welfare;
the Federal Power Commission
and participating states.

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OUTDOOR RECREATION STUDY
OF THE
OHIO RIVER BASIN

② APPENDIX H
OHIO RIVER BASIN COMPREHENSIVE SURVEY.

Volume IX.

Appendix H.

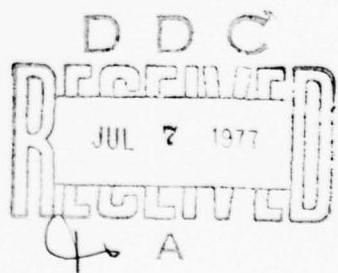
Prepared for

U. S. Army Engineer Division, Ohio River
Corps of Engineers
Cincinnati, Ohio

by

Bureau of Outdoor Recreation
Lake Central Region
Ann Arbor, Michigan

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION

LAKE CENTRAL REGION

3853 RESEARCH PARK DRIVE
ANN ARBOR, MICHIGAN 48104

IN REPLY REFER TO:

D64270H

November 21, 1966

Division Engineer
U.S. Army Engineer Division, Ohio River
P. O. Box 1159
Cincinnati, Ohio 45201

Dear Sir:

It is a pleasure to transmit the Bureau of Outdoor Recreation's report, Outdoor Recreation Study of the Ohio River Basin, to be appended to the main report of the Ohio River Basin Comprehensive Survey.

This report, designated as Appendix H to the main report, presents our findings regarding general outdoor recreation in the Ohio River Basin. Our study indicated that a growing need exists for the development of additional recreation facilities throughout the basin. This report specifies those areas of the basin in which the needs for water-related outdoor recreational opportunities are greatest. The report also suggests, in general terms, possible alternative approaches to alleviating the needs. Any future planning studies which utilize this report should consider the limitations placed on the analysis by data availability and necessary assumptions.

The report should be viewed as a prelude to future recreational planning efforts and as a possible stimulant to thought and action by those having responsibility for the development of the water resources in the Ohio River Basin.

Sincerely yours,

Roman H. Koenings
Roman H. Koenings
Regional Director

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FOREWORD

The current National outdoor recreation policy is embodied in the opening passage of Public Law 88-29, approved May 28, 1963, by the United States Congress:

. . . the Congress finds and declares it is desirable that all American people of present and future generations be assured adequate outdoor recreation resources, and that it is desirable for all levels of government and private interests to take prompt and coordinated action to the extent practicable without diminishing or affecting their respective powers and functions to conserve, develop, and utilize such resources for the benefit and enjoyment of the American people.

ACKNOWLEDGEMENTS

Federal, state, county and municipal agencies, private organizations, and individuals located in the several states within the basin have contributed immeasurably to this study in the way of pertinent data, technical assistance and constructive comments. Within the many agencies contacted in the course of the study were numerous individuals who gave much of their time and knowledge. The Bureau is indebted to these many agencies, organizations, and individuals for their cooperation and assistance in the formulation of the report. Special acknowledgement should go to the National Park Service, Region Five, for its role in initiating the study and its cooperation in effecting the transition to participation by this Bureau.

Population projections and general economic data used in the study were extracted from the Projective Economic Study. Other basic data used in the projection of demands and needs were garnered from the Outdoor Recreation Resources Review Commission Study Reports (ORRRC) and information supplied by the various state and Federal agencies involved in the comprehensive study.

SUMMARY

The recreation phase of the Ohio River Basin Comprehensive Survey endeavors to determine the prospective demands and needs for water-related outdoor recreation opportunities in the Ohio River Basin in the years 1980, 2000, and 2020. The needs are presented relative to the supply in the base year, 1960. The methodology used in ascertaining the outdoor recreation demands and needs utilizes individual recreation activity participation rates and estimates of increases in recreation demand developed in the Outdoor Recreation Resources Review Commission Study Reports 1 through 27. Eight outdoor recreation activities considered in the ORRRC studies were determined to be water-enhanced or water-dependent and were used in developing the prospective demands for water-related recreation facilities in the basin. The selected activities were: swimming, boating, water skiing, picnicking, camping, sightseeing, nature walks, and hiking.

The recreational needs (unsatisfied demands) in the basin were determined by relating inventoried 1960 supply to the estimated demands in the target years. The 1960 supply was considered to be the 1960 visitation at basin facilities administered by Federal, state, and local agencies and was obtained from the nationwide plan inventory developed by the Bureau of Outdoor Recreation in conjunction with Federal, state, and local agencies.

The basin is delineated along county lines as in the Projective Economic Study and encompasses 161,690 square miles in 386 counties (including two counties in New York which were not part of the Projective Economic Study). The basin is divided into 19 subareas similar to those delineated in the economic study with the exception that Subarea A (Allegheny River Basin) includes Chautauqua and Cattaraugus Counties in New York. An included study area encompassing 107 counties within a reasonable driving distance of the basin was considered in the study in recognition of the resource developments and potential origination of outdoor recreation demands in the immediate vicinity of the basin. A map depicting the component study areas is shown on Plate 1.

Estimates of water-related outdoor recreation demands and needs were determined for both the basin and the 19 subareas. These estimates are illustrated graphically in Figures 1 through 4 on the following pages.

FIGURE I

ESTIMATED ANNUAL ACTIVITY DAYS IN TARGET YEARS
(8 Selected Activities)

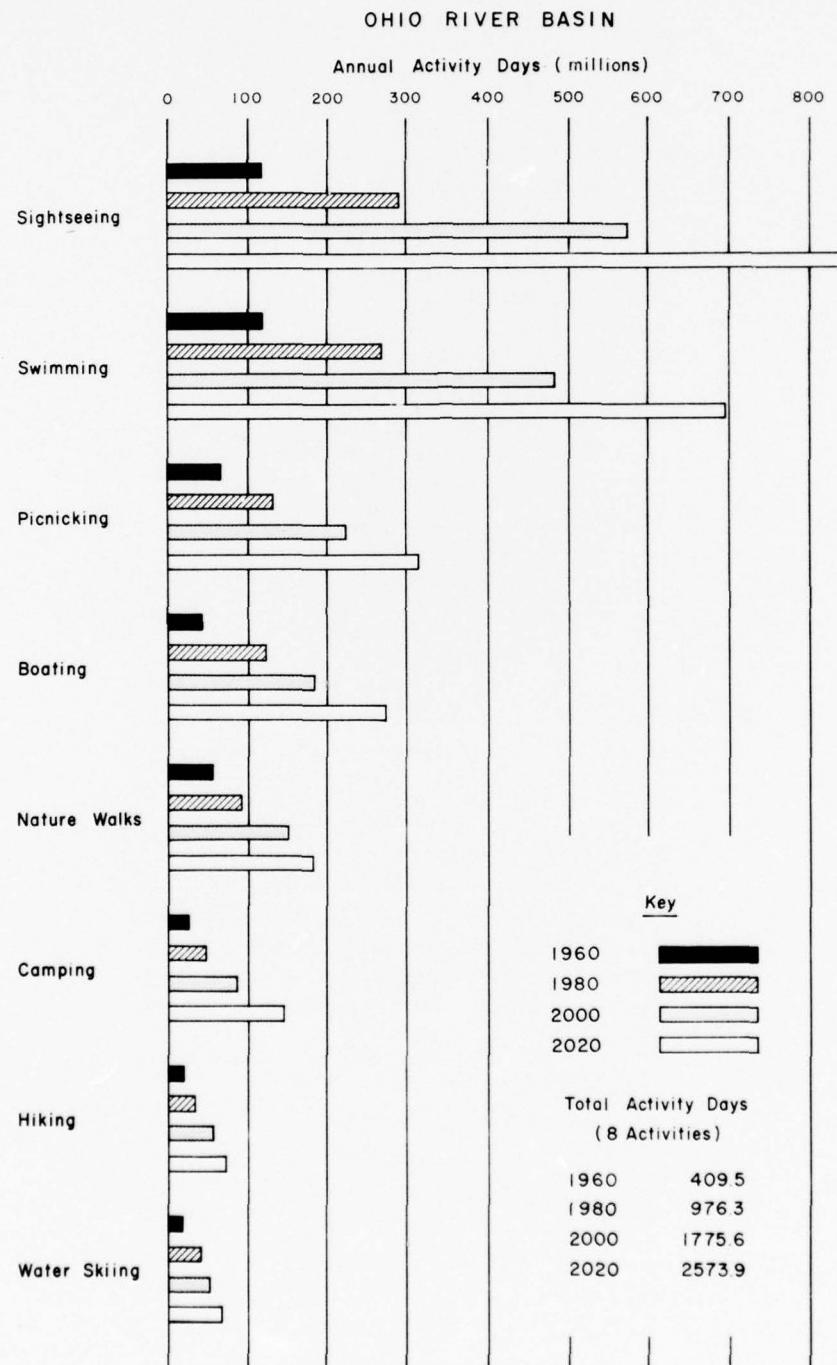


FIGURE 2

ESTIMATED DEMANDS AND NEEDS
OHIO RIVER BASIN

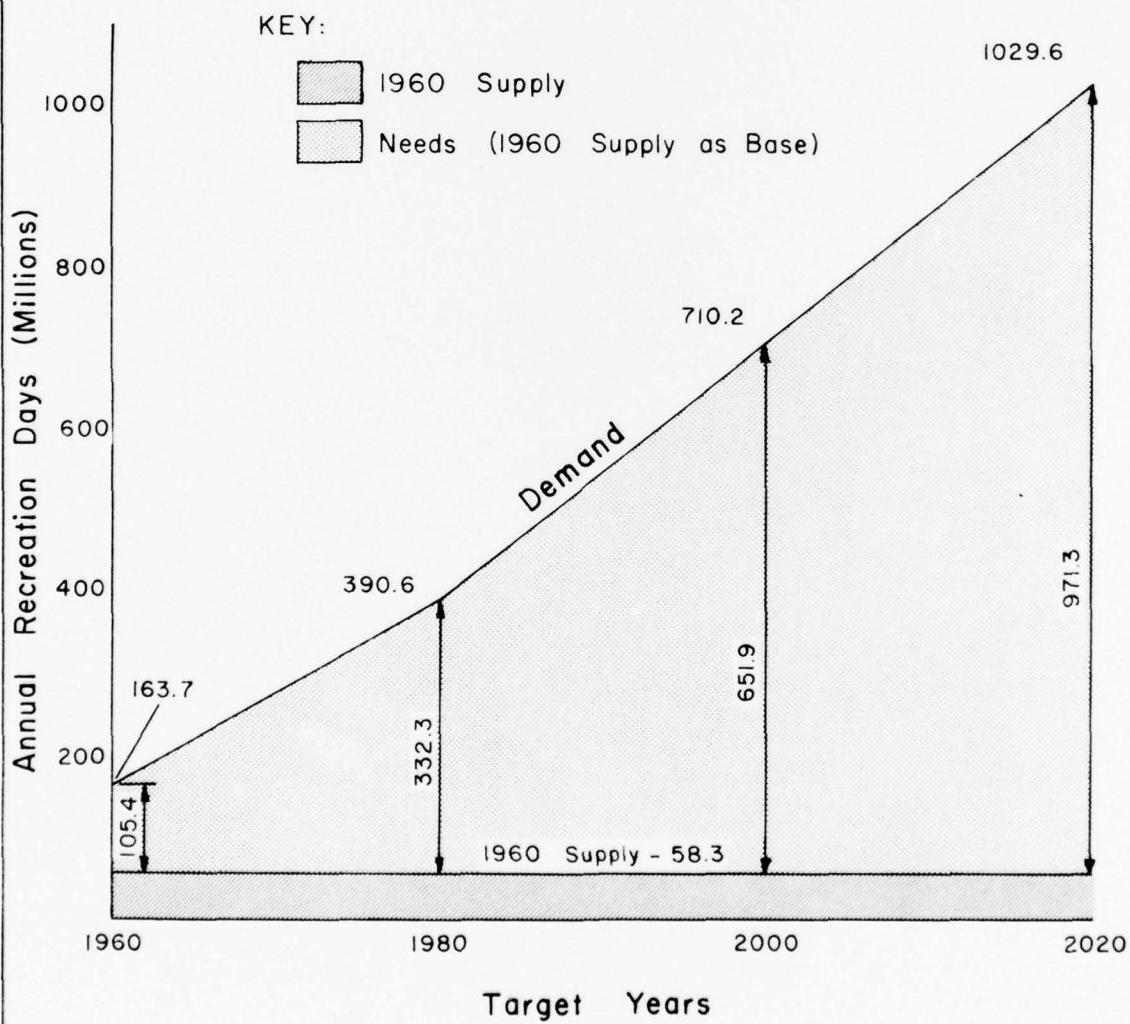


FIGURE 3
 ESTIMATED ANNUAL OUTDOOR RECREATION DEMANDS
 BY BASIN ECONOMIC SUBAREAS
 OHIO RIVER BASIN

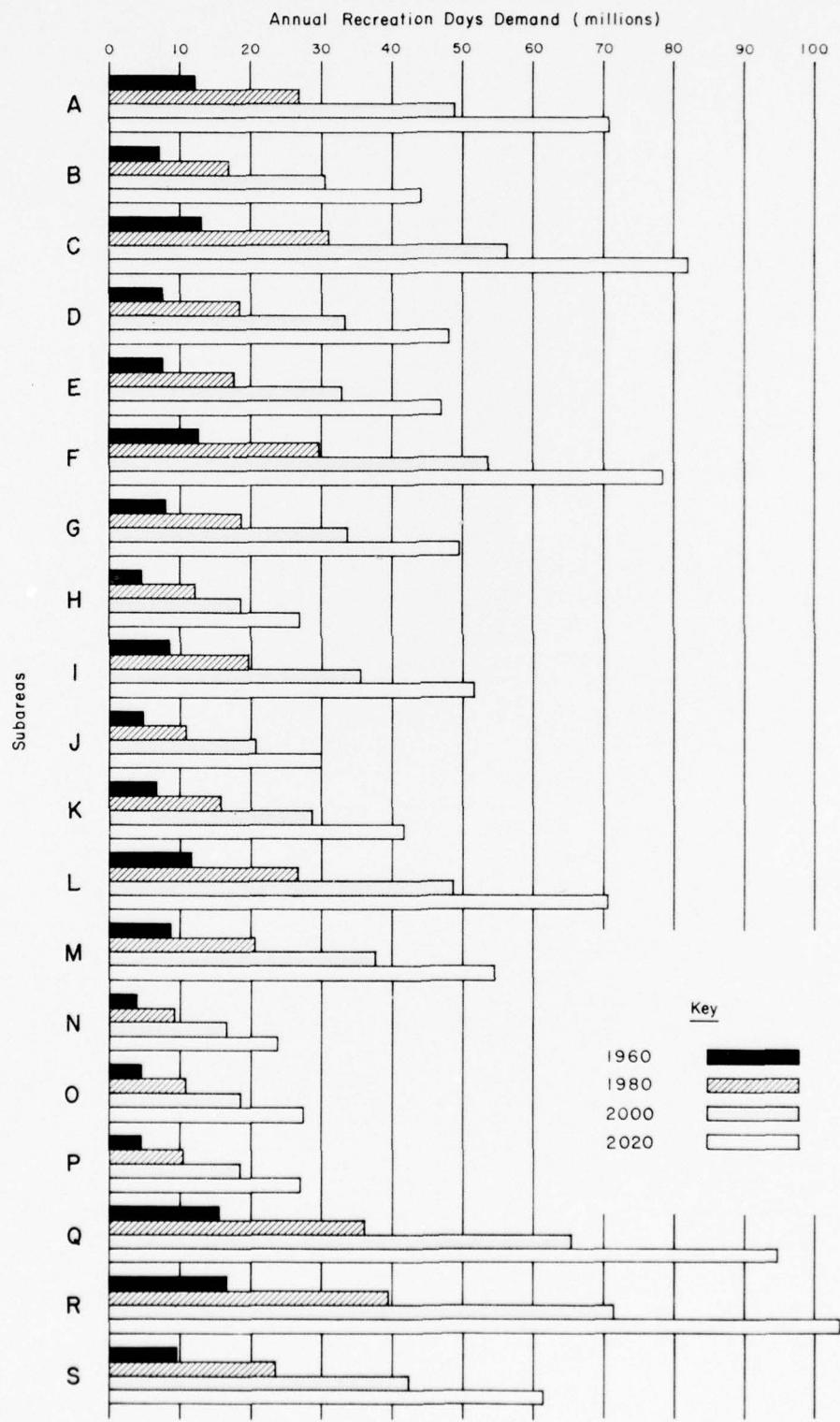
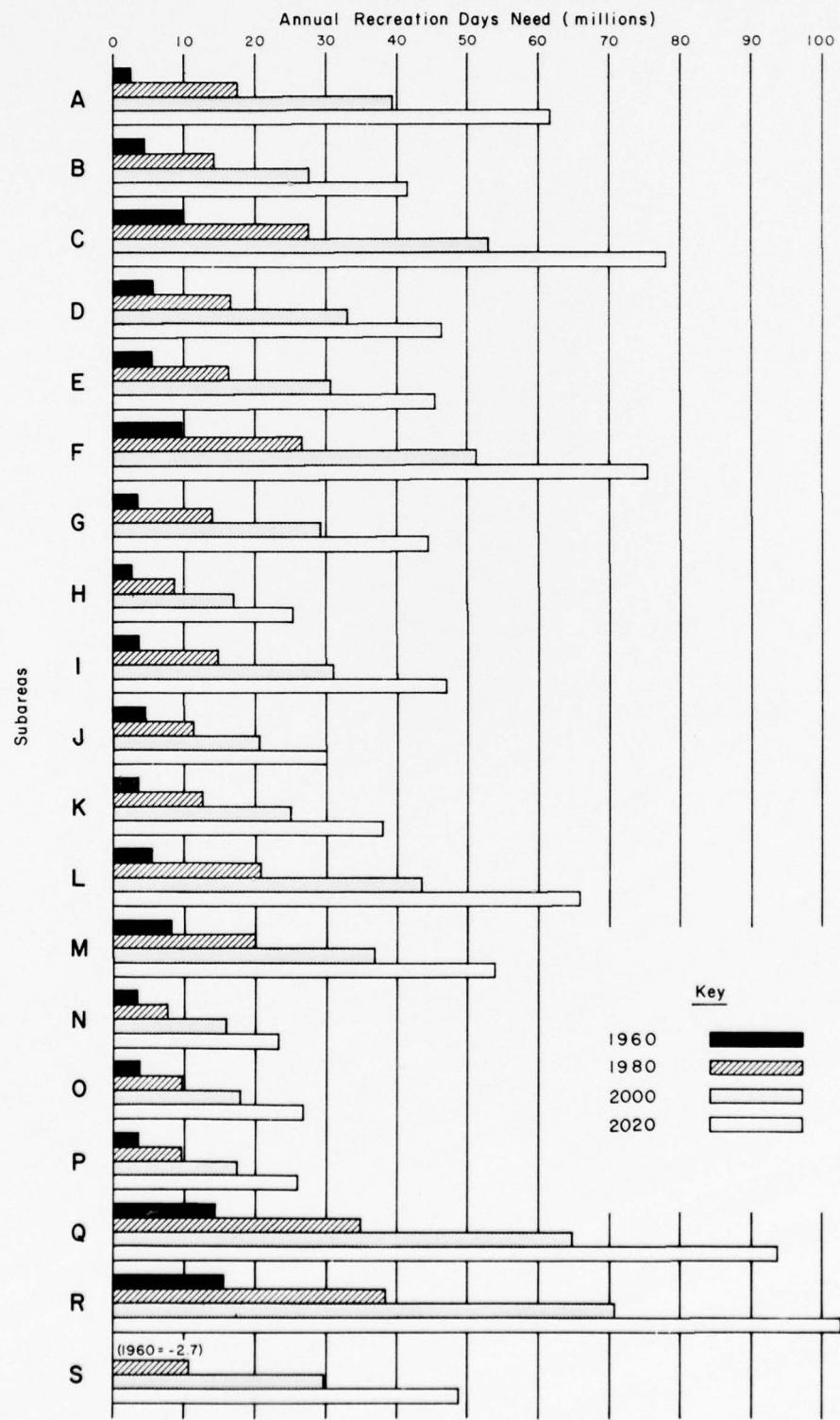


FIGURE 4

**ESTIMATED ANNUAL OUTDOOR RECREATION NEEDS
BY BASIN ECONOMIC SUBAREAS**

OHIO RIVER BASIN



The inventoried Federal, state and local agency programs for future acquisition and development of recreation resources are not adequate to satisfy the estimated needs in the base year, 1960. Seven of the subareas show a higher than average (basin) need for recreational development by the year 2020: Wabash (R), White (Q), Pittsburgh SMSA (C), Muskingum (F), Little Miami-Miami (L), Allegheny (A), and Licking-Kentucky-Salt (M). The Ohio-Louisville (N) and Ohio-Huntington (H) Subareas display the least need for development, but further development beyond that presently programmed in these subareas will be necessary to adequately satisfy the estimated recreational demands in the target years. Although five of the subareas - Monongahela (B), Kanawha-Little Kanawha (G), Guyandot-Big Sandy-Little Sandy (J), Green (P) and Cumberland (S) - show a less than average (basin) need for recreational facilities in the target years, the abundant resources of these areas are potentially capable of satisfying the excess recreational needs originating from the north and east and west. The needs of the relatively water-resource-poor Pittsburgh SMSA, for example, could possibly be satisfied in the Monongahela and Kanawha-Little Kanawha Subareas through adequate construction of water-oriented recreational facilities and access routes thereto.

Federal ownership of inventoried lands in the basin in 1960 was greater than the combined state and local agency ownership. However, the amount of visitors per acre at Federal areas was less than half that at state areas and only one-seventh of the use pressure at areas administered by local agencies. Almost 75 percent of the inventoried water area available for recreation in the basin was provided by Federal agencies. Approximately 243,000 acres of water were inventoried on a total of over 4,131,000 acres of recreational lands in the basin. Visitations to the inventoried recreation areas exceeded 58 million in the base year, 1960. Over 1,331,000 acres of recreational lands are currently programmed for acquisition and/or development by Federal, state, and local agencies.

The following conclusions were determined from the study of water-oriented outdoor recreation in the Ohio River Basin:

1. All of the nineteen subareas delineated in the basin have a need for additional development to meet the outdoor recreation demands in each of the target years.
2. The estimated demands for water-oriented outdoor recreation opportunities in the target years 1980, 2000, and 2020 indicate a better than two-fold, four-fold, and six-fold increase, respectively, over the demands in 1960. The target year demands are estimated at: 1980 - 390.6 million recreation days, 2000 - 710.2 million recreation days, and 2020 - 1,029.6 million recreation days.
3. The 1960 visitation at inventoried facilities totaled 58.3 million recreation days. Lack of adequate data

on resource capacities required that the inventoried visitation be used as supply.

4. The recreation needs (unsatisfied demands relative to 1960 supply) for the target years were determined to be: 1980 - 332.3 million recreation days, 2000 - 651.9 million recreation days, and 2020 - 971.3 million recreation days.

5. A range of resource requirements to accommodate the unsatisfied demands were estimated to be as follows:

<u>Year</u>	<u>Acres (1000's)</u>	
	<u>Land</u>	<u>Water</u>
1980	638.0 to 2,857.8	176.1 to 2,904.3
2000	1,160.4 to 5,801.9	365.1 to 6,056.2
2020	1,748.3 to 8,741.7	563.4 to 9,207.9

6. Estimates of capital costs of development to meet the unsatisfied demands were as follows:

<u>Year</u>	<u>Development Costs (millions)</u>
1980	\$ 747.7 to \$1,495.4
2000	1,466.8 to 2,933.6
2020	2,185.4 to 4,370.8

The report recommends that:

1. Planning and development programs for water-oriented outdoor recreation resources be accelerated by all public agencies in each of the basin's 19 subareas.
2. Detailed studies of the basin's navigable waterways be undertaken to ascertain the extent to which the waterways can alleviate recreational needs.
3. Scenic roads and parkways be planned and constructed as an integral part of water resource developments.
4. Potential scenic riverways be studied in detail to determine their capabilities for meeting a portion of the water-related demands in the basin.
5. The Wabash, White, Pittsburgh SMSA, Muskingum, Little Miami-Miami, Allegheny, and Licking-Kentucky-Salt Subareas be given primary consideration for any detailed studies to alleviate the water-oriented recreational needs of the basin.
6. The recreational programs of all agencies administering recreation facilities be considered in any detailed planning studies of the subareas and the basin.

OUTDOOR RECREATION STUDY
OF THE
OHIO RIVER BASIN

APPENDIX H
OHIO RIVER BASIN COMPREHENSIVE SURVEY

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OUTDOOR RECREATION STUDY
OF THE
OHIO RIVER BASIN

I. INTRODUCTION

A. Authority. A resolution adopted by the Committee on Public Works of the United States Senate on May 16, 1955, directed the Corps of Engineers, Department of the Army, to conduct a review of reports on the Ohio River "with a view to determining whether any modification in the present comprehensive plan for flood control and other purposes in the Ohio River Basin is advisable at this time." The basic responsibility for the study was assigned to the Division Engineer, U. S. Army Engineer Division, Ohio River.

The initial request for a recreation study of the basin as an integral part of the overall survey was submitted by the Division Engineer to the Regional Director, National Park Service, Region Five, by letter of October 10, 1961. The Park, Parkway and Recreation Area Study Act of June 23, 1936, provided authority for National Park Service participation.

The basic responsibility for the recreation phase of the Ohio River Basin Comprehensive Survey was transferred to the Bureau of Outdoor Recreation after establishment of the Bureau by order of the Secretary of the Interior, April 2, 1962. Public Law 88-29, dated May 28, 1963, delegated authority for Bureau of Outdoor Recreation participation in the study. Section 2 (g) of Public Law 88-29 authorizes the Secretary of the Interior to:

- . . . (1) Cooperate with and provide technical assistance to Federal departments and agencies . . .
- and (2) promote coordination of Federal plans and activities generally relating to outdoor recreation
- . . .

B. Purpose. Correspondence from the Division Engineer, U. S. Army Engineer Division, Ohio River, to the Regional Director, National Park Service, Region Five, dated October 10, 1961, and October 8, 1962, set forth the purposes of the recreation phase of the comprehensive survey as a study of current demand and growth of demand on outdoor recreation resources, an inventory of existing and planned facilities, a determination of present and projected need for additional outdoor recreation opportunities, and the designation of areas within the basin where more detailed study will be required. Several potential reservoir projects in the basin were also to be evaluated in detail for immediate consideration. Although, this latter aspect of the study was deleted pursuant to subsequent Guidelines for Framework Studies approved by the Inter-departmental Staff Committee, ad hoc Water Resources Council, some potential sites were evaluated for inventory purposes and to determine

their potential for alleviating a portion of the outdoor recreation needs of the basin. Evaluation of selected potential sites was deemed necessary for a proper analysis of the overall potential of all sites in the basin.

C. Scope. This Appendix H considers the current (base year 1960) and prospective unsatisfied water-related outdoor recreation demands and resource requirements within the Ohio River Basin, exclusive of the Tennessee River Basin, and indicates areas of greatest need for further, more detailed investigation. Resource requirements to meet the unsatisfied demands for water-related outdoor recreation opportunities in 1980, 2000, and 2020 have been determined for the basin. Unsatisfied demands have also been estimated for each of the 19 subareas which were delineated in the Projective Economic Study (Appendix B - Ohio River Basin Comprehensive Survey).

D. Background. The Ohio River Basin Comprehensive Survey was initiated as a result of a Senate Resolution adopted May 16, 1965, requesting the Corps of Engineers to review the reports on the Ohio River published in House Document Numbered 306, Seventy-fourth Congress, First Session, House Committee on Flood Control Document Numbered 1, Seventy-fifth Congress, First Session, and related reports.

An Ohio River Basin Coordinating Committee was formed for the purpose of providing a means for exchanging views among the participating Federal and state agencies. Those Federal agencies represented are the Departments of Agriculture; Army; Commerce; Health, Education and Welfare; and Interior; and the Federal Power Commission. The eleven states in the basin--Ohio, Indiana, Kentucky, West Virginia, New York, Pennsylvania, Illinois, Maryland, Virginia, North Carolina, and Tennessee--are also represented.

E. Definitions. The following definitions are applied to outdoor recreation terminology in this report. These definitions are not considered to deviate to any great degree from existing definitions in general use.

1. Outdoor Recreation - Leisure time activities which utilize an outdoor setting.
2. Outdoor Recreation Activity - A specific leisure time pursuit in an outdoor activity, i.e., picnicking, boating, etc.
3. Outdoor Recreation Resources - Land, water, and associated natural or man-made resources which provide or are capable of providing opportunities for outdoor recreation.
4. Recreation Demand - A measure of the amount of outdoor recreation opportunities which the public desires. The demand is expressed in this report in terms of recreation days.

5. Recreation Supply - The resources and facilities capable of providing outdoor recreation opportunities. The supply is expressed in recreation days of visitation which the resources or facilities accommodate.

6. Recreation Need - The demand for outdoor recreation opportunities less the existing supply, i.e., the unsatisfied demand.

7. Recreation Day - A visit by an individual to a recreation development or area for recreation purposes during any reasonable portion or all of a 24-hour period.

8. Resource Requirements - The land and water areas required to accommodate the unsatisfied outdoor recreation demands.

9. Recreation Market Area - Zone of project influence from which people are drawn for day use or weekend (overnight) outings.

10. Activity Day - The participation by an individual in a particular outdoor recreation pursuit during any part of a day; participation in three activities during a single day constitutes three activity days.

11. Latent Recreation Demand - That recreation demand which is inherent in the population but not reflected in the use of existing facilities; additional participation which could be expected to occur if adequate facilities are made available.

12. Effective Population - That population which is considered to affect the recreation demand of a study area.

13. Leisure - Time not utilized in the principal source of employment.

14. Swimming - "Bathing," skin or scuba diving.

15. Boating - The recreation use of rowboats, outboard and inboard motorboats, rafts, floats, etc. Canoes and sailboats are included in this category for this study.

16. Water Skiing - Any of the various sports where the person is towed behind a boat; includes use of aquaplanes, water skis, etc.

17. Picnicking - An outdoor activity away from home; the primary purpose being the preparation or eating of a meal out-of-doors.

18. Camping - Living out of doors using a bed roll, sleeping bag, trailer, tent, etc., for shelter and carrying one's own bedding, food and cooking equipment.

19. Sightseeing - Looking at some outdoor resource of interest, the major limitation being that the sightseeing must be intentional; does not include casual viewing from car windows.

20. Nature Walks - Walks for the purpose of observing either plants, birds, or animals, and the collection of specimens, photographing natural subjects, etc.

21. Hiking - Walking on trails with a pack which normally includes provisions and some kind of shelter; excludes casual walking and nature walks.

F. Basic Assumptions. The following assumptions were made in the course of the outdoor recreation study of the basin:

1. The estimated demand for water-related outdoor recreation opportunities in the basin would apply through adequate development and administration of basin resources.

2. The demand for opportunities in eight activities - swimming, boating, water skiing, picnicking, camping, sightseeing, nature walks, and hiking - indicates the outdoor recreation demands on the basin's water and related land resources.

3. The participation rate and rate of increase in demand for each recreation activity would be the same for the subareas as for the basin; available data on participation rates is not statistically capable of disaggregation to a subarea level.

4. The inventoried 1960 visitation would be equivalent to the supply in that year (assumed for lack of better data).

5. The average individual would participate in 2.5 activities during a visit to an area in which the eight selected activities are available.

6. The recreation market area of each subarea includes the subarea and all standard metropolitan statistical areas (SMSA's) within 125 miles (\pm) of the subarea boundary.

7. Standard metropolitan statistical areas are focal points from which a high percentage of outdoor recreation demand originates.

8. About 60 percent of outdoor recreation use occurs within 40 miles and 90 percent within 125 miles (30 percent between 40-125 miles) of the point of origination if facilities are available.

9. The total recreation demand of a subarea's non-SMSA population would be contained within the subarea. (Immigration for recreational purposes would equal emigration for those purposes.)

II. GENERAL DESCRIPTION

A. Physical.

1. General. The Ohio River Basin as considered in this study encompasses 163,000 square miles drained by the Ohio River and its 18 major tributaries exclusive of the Tennessee River. The basin lies within three of the four census regions delineated by the Bureau of the Census - North Central, Northeast, and South. Portions of 11 states are included within the basin drainage area: New York, Pennsylvania, Ohio, Indiana, Illinois, Kentucky, Tennessee, West Virginia, Maryland, Virginia, and North Carolina. This recreation phase study considers 386 counties in these 11 states as being within the basin.

The Ohio River has the highest volume of flow and is the second largest watershed tributary to the Mississippi River. The Ohio River originates at Pittsburgh, Pennsylvania, at the juncture of the Allegheny and Monongahela Rivers and flows generally southwest for a distance of 981 miles to join the Mississippi River at Cairo, Illinois. The 18 major tributaries which flow into the Ohio River along its route are the Allegheny, Monongahela, Beaver, Muskingum, Little Kanawha, Hocking, Kanawha, Guyandot, Big Sandy, Scioto, Little Miami, Licking, Miami, Kentucky, Salt, Green, Wabash, and Cumberland Rivers.

About 10.6 percent of the population of the contiguous 48 states resided in the basin in 1960. The basin land area is approximately 5.5 percent of the total conterminous United States. Six of the Nation's 50 largest cities and 21 of the total 212 standard metropolitan statistical areas (1960 classification) lie within the basin boundaries.

2. Physiography. Six physiographic provinces are found within the Ohio River Basin: Appalachian Plateau, Central Lowland, Interior Low Plateau, Valley and Ridge, Blue Ridge, and Coastal Plain. The latter comprises only a small area near the mouth of the Ohio River. Topography varies from the rugged, forested Appalachian Mountains in the east to relatively level farmlands in the north-central portion of the basin. Rough, unglaciated lands border the Ohio River from Pennsylvania through Illinois. North of the river lie glacial plain farmlands which are drained by meandering rivers flowing through wide, flat valley floors. The lands to the south are level in the lower reaches of the western tributaries but become increasingly rolling and finally rugged and heavily wooded towards the eastern boundary.

Soils vary from the rich black earth of the Corn Belt and fertile river valleys to poorly drained claypan and shallow rocky soils of upland areas. The mountain regions of eastern Kentucky, western Pennsylvania, and West Virginia still remain extensively forest covered. The topography of the basin, generally, is well suited to recreational development, but the more adaptable undeveloped resources frequently are far removed from the centers of population.

3. Climate. The basin's climate is of a continental type with marked seasonal variations. The humidity is high. Temperatures range from lows of -35° Fahrenheit to highs of 110° Fahrenheit. January and July are the coldest and hottest months, respectively.

Cyclonic storms moving generally from west to east during the winter and early spring months follow a path through the basin. These storms produce heavy precipitation that may cause general floods on the main stem. Cloudbursts in the smaller drainage areas cause severe local flooding. Occasional droughts also have been experienced. Variations in average annual precipitation range from approximately 30 inches in the northwest portion of the basin to more than 50 inches in the southeast. Annual snowfall varies from about 10 inches in the western and southwestern portions to about 60 inches in the northeast and as high as 80 inches in southwestern New York.

The summer recreation season, in general, is considered to extend from Memorial Day to Labor Day, or 14 to 16 weeks. Occasional mild fall seasons may increase this season through mid-October, although the general recreation use during this fall period is substantially less than that during the summer season. Snowfall and extended cold periods during the winter months are adequate to permit considerable winter sports activity in the more mountainous sections of the basin.

B. Socio-economic.

1. Population.

a. General. In 1960 over 19 million people resided in 386 counties of the basin covering a total area of 161,690 square miles. (The area varies somewhat from the 163,000 square miles drainage basin due to the delineation of subarea boundaries on county lines.)

Approximately 58 percent of the basin's inhabitants in 1960 were urban dwellers, and the 21 SMSA's in the basin contained 50.3 percent of the total population. The Projective Economic Study estimates that 64.2 percent of the populace will inhabit urban areas by 1980 while 72.8 percent of the population in the year 2010 is expected to be urban. Although urbanization of the basin population is anticipated to progress at a greater rate than the Nation, the basin percent of urbanization will still be less than the National average in the target years. At the same time, the basin's portion of the conterminous U. S. population is expected to decrease to 8.4 percent by the year 2010.

The 1960 basin population is expected to increase 1.22 times by 1980 (23.1 million) and 1.66 times by the year 2010 (31.6 million). However, these population increase rates will be less than those of the Nation, i.e., 1.36 and 2.10 for 1980 and 2010, respectively. This is a significant factor in determining increases in demands for outdoor recreation opportunities in the basin since the methodology used in estimating future recreation use involved a comparison of population increase rates in the basin and the Nation.

The Projective Economic Study indicates that Subareas Q (White) and I (Scioto) are expected to show the greatest increase in percent of basin population for the 1960-2010 period. Conversely, it is anticipated that the Pittsburgh SMSA, Subarea C, will experience the greatest reduction in the share of basin population during the same 50-year period. The basin population shares generally are projected to diminish in the eastern or Appalachian subareas while increasing in the northwestern subareas.

Available data on outdoor recreation participation rates are not considered to be statistically capable of disaggregation to the subarea level. Therefore, in developing estimates of recreation demands, it was necessary to assume that each water-related outdoor recreation participation rate and the rate of increase in demand for each activity would be the same for the subareas and the basin. Because of this limiting requirement, the 1960 effective population of each subarea became the primary parameter for developing estimates of demand and indicating the differences in demand between the 19 subareas.

b. Effective Population. The effective 1960 population for the basin was determined to be 19,207,300. The effective population is considered to be the amount of people which reside within 125 miles of a study area and affect the demand for outdoor recreation resources in the study area.

The actual 1960 basin population, 19,226,200 (including Cattaraugus and Chautauqua Counties in New York), and the effective population, 19,207,300 (also including the two New York counties), appear very similar. While this similarity is evident for the basin, the individual subareas display distinct variations between actual and effective populations.

The actual and effective 1960 populations of each subarea are shown in the table on the following page.

2. Economic Activities. The Ohio River Basin enjoys a highly diversified economy. Comparison of major industrial groups - agriculture (including forestry and fisheries), mining, construction, manufacturing, transportation, wholesale and retail trade, finance, services, government, and nonclassifiable - indicates that the pattern of employment in the basin is very similar to that of the Nation. Employment in manufacturing, services, and wholesale and retail trade ranked 1, 2, and 3, respectively, for both the basin and the Nation in 1960.

Employment in the services field is expected to nearly triple in the 50-year period from 1960 to 2010. Services employment in 1960 totaled 1,232,600 persons and accounted for 19.2 percent of the basin's total employed working force. Approximately 3,550,000 people are expected to be employed in the services field by the year 2010. This would represent 29.5 percent of the basin's projected total employment. The nearly three-fold rate of growth in services expected by 2010 is greater than the projected increase rate in total employment for the basin's major

Actual and Effective Subarea Populations - 1960

<u>Subarea</u>	1960 Population (1,000's)	
	<u>Actual</u>	<u>Effective</u>
A-Allegheny	1,030.7	1,320.3
B-Monongahela	556.1	820.5
C-Pittsburgh SMSA	2,405.4	1,523.8
D-Beaver	864.1	895.1
E-Upper Ohio	700.7	874.9
F-Muskingum	1,040.3	1,457.5
G-Kanawha-Little Kanawha	899.4	913.4
H-Ohio-Huntington	531.7	503.2
I-Scioto	1,113.4	960.9
J-Guyandot-Big Sandy-Little Sandy	463.7	560.6
K-Ohio-Cincinnati	1,309.6	771.3
L-Little Miami-Miami	1,419.0	1,316.4
M-Licking-Kentucky-Salt	722.7	1,013.3
N-Ohio-Louisville	852.6	440.7
O-Ohio-Evansville	559.2	505.5
P-Green	393.1	495.7
Q-White	1,782.9	1,765.9
R-Wabash	1,362.4	1,928.3
S-Cumberland	1,219.2	1,140.0
OHIO RIVER BASIN	19,226.2	19,207.3

industry groups and greater than the growth rate in any other single industry category. Only three other industry groups show projected increases in shares of total employment - construction, finance, and government.

By the year 2010 the services industry is expected to be the primary user of the basin's labor force. This is considered significant in the field of outdoor recreation since recreation services fall within the services industry category. Development of recreation facilities have aided in the growth of the service industry; and with the anticipated acceleration in water resource development to meet the needs of the basin, it is expected that outdoor recreation will play an increasingly important role in the basin's economy in future years.

3. Transportation.

a. General. A detailed study of the basin's transportation network, including air, rail, waterway, and highway systems, has not been undertaken for this phase of the comprehensive survey. Although accessibility by road is considered to be the prime factor in determining travel patterns for the major portion of day and weekend recreation use, it is recognized that airline, railroad, and, in a lesser sense, waterway systems provide routes of access for tourists and vacationers.

Plane and train connections are available at major cities throughout the basin, but highway access from these cities to the recreation facilities remains the limiting factor. However, within some recreation areas, such as Rough River Dam State Park, Kentucky, landing strips are provided for private planes; thus, the areas are made more readily available to a relatively small portion of the general public.

The watercourses of the basin afford access in their own right to recreation activities inherent in the rivers themselves and to facilities developed along river banks. The Ohio River and six of its tributaries --Allegheny, Monongahela, Kanawha, Kentucky, Green, and Cumberland Rivers--offer recreation boaters access to much of the basin as a result of navigational structures erected primarily for water transport of bulk commodities.

Although these several methods of transportation are readily available, it is considered that the basin's road network affords the major means of access for outdoor recreation users.

b. Highway System.

(1) General. The entire basin is interlaced with a network of interstate, U. S., state, county, and township roads which offer access via automobile. Because of variances in topography and population concentrations, the northern and western portions of the basin are more densely intertwined with roadways than are the more rugged eastern and southern sections. State and local roads supplement the U. S. and interstate systems by offering direct access from the major highways to the recreation resources.

(2) U. S. Routes. The major U. S. routes which traverse the basin from east to west include U. S. 6, 22, 30, 33, 35, 36, 40, 50, 60, and 70. These highways afford access to recreation resources for the population within the basin and such cities outside the basin as St. Louis, Springfield, Fort Wayne, Lima, Altoona, etc. The north-south U. S. routes include U. S. 19, 21, 23, 25, 27, 41, 42, 45, 54, 62, 68, and 119, providing access within the basin and from the nearby cities of Chicago, South Bend, Toledo, Cleveland, Erie, Buffalo, Chattanooga, Knoxville, etc. These routes are an integral part of the overall road network and serve not only as main arteries of travel in some areas, but as intermediaries between the high-speed interstate routes and the state and local roads which lead directly to the recreation resources. Many of these U. S. routes are being improved under the regular Federal-aid highway program or the Appalachian development highway program.

(3) Interstate Routes. The Ohio River Basin contains a concentrated system of completed or proposed interstate highways. In the seven states which are considered to comprise the major part of the basin - Illinois, Indiana, Ohio, Pennsylvania, West Virginia, Kentucky, and Tennessee - approximately 8,090 miles of interstate roads are proposed for construction. Thus, approximately 19 percent of the

programed 40,900 miles of interstate highways for the entire conterminous United States will be contained within these seven basin states.

These figures do not include such roadways as the Western Kentucky Turnpike which is somewhat similar to the interstate routes both in design and capability for moving large numbers of people a great distance in a relatively short time. The completed system of high-speed roadways will be a major factor in transporting people from large metropolitan and urban population centers to areas offering outdoor recreation facilities. The interstate routes and the major cities which they serve are shown on Plates 2 through 8.

III. DEMAND, SUPPLY, AND NEEDS

A. Recreation Market Area. The recreation market area, or zone of influence of recreation resources in the basin, is considered to include the 386 counties in the 19 subareas delineated for this study plus the standard metropolitan statistical areas within 125 miles(+) of the basin boundaries. Twenty-three standard metropolitan statistical areas lying outside the basin were considered in determining the population affecting the area's recreation resources. These SMSA's are: Toledo, Lima, Lorain-Elyria, Cleveland, and Akron, Ohio; Erie, Altoona, Harrisburg, and York, Pennsylvania; Buffalo, New York; Roanoke and Lynchburg, Virginia; Asheville, North Carolina; Chattanooga and Knoxville, Tennessee; St. Louis, Missouri; Springfield, Decatur, Peoria, and Chicago, Illinois; and Gary-Hammond-East Chicago, South Bend, and Fort Wayne, Indiana.

The inventory of recreation supply included facilities located in an additional 107 counties in the vicinity of the basin. These facilities were inventoried merely to indicate the resource developments available in neighboring areas and no determination of needs in this included study area was attempted. This included study area does not include counties in Kentucky, North Carolina, or Tennessee since the Tennessee River Basin was excluded from the study. (The study areas are shown on Plate 1.)

B. Recreation Demand.

1. General. The total demand for water-related recreational opportunities in the Ohio River Basin is estimated at 1,029,600,000 recreation days by the year 2020. Estimates of the basin's annual recreation demands in all the target years are presented in the following tabulation.

OUTDOOR RECREATION DEMANDS

Activity	Annual Activity Days (1,000's)			
	1960	1980	2000	2020
Swimming	113,132	226,990	481,943	696,892
Boating	42,448	103,570	188,894	273,790
Water Skiing	6,721	20,701	41,331	61,900
Picnicking	65,305	130,610	216,158	301,054
Camping	12,870	42,726	89,059	135,135
Sightseeing	112,748	297,654	571,632	846,736
Nature Walks	49,361	91,811	141,666	191,027
Hiking	6,914	22,261	44,870	67,413
Total Activity Days	409,499	976,323	1,775,553	2,573,947
Recreation Days (M)*	163.7	390.6	710.2	1,029.6

* Annual Recreation Days(millions) = Total Annual Activity Days/2.5
(see demand methodology).

The tabulations show that recreation demands for the target years 1980, 2000, and 2020 will approximate 2.4, 4.3, and 6.3 times, respectively, the demands in the base year, 1960. Camping, hiking, and water-skiing show the greatest increases among the eight selected activities. Nature walks and picnicking show a relatively low increase rate.

With the varying increases between activities, the ranking of the eight activities in terms of total recreation days is expected to change somewhat by 2020. Sightseeing will replace swimming as the number one activity participated in by the most people. Boating will rank fourth in total number of participants and replace nature walks in that position. All other activities would retain their 1960 ranking. These rankings and the estimated demands from which they are determined are based on present water-oriented activities, however. Advancing technology and "American ingenuity" may create new activities to supplement or replace those which have been considered in this study.

2. Methodology. The projection of demands for outdoor recreation opportunities in the Ohio River Basin utilizes 1960 participation rates and estimates of future increases in recreation use as presented by the Outdoor Recreation Resources Review Commission in Study Reports 19 and 26. The methodology is people-oriented in that the demands for recreation within a study area are determined as those demands which are created by the population affecting the study area and which could be expected to occur if facilities were made available. Latent demand (that portion of the recreation demand which is inherent in the study area population but not reflected in the present use of the area's facilities) is considered in the methodology, since it is assumed that there will be an improvement from 1960 quality and quantity of facilities available on a per capita basis. It is felt that a per capita increase in quality and quantity of facilities would provide impetus for utilization of resources by a larger portion of the population.

It should be stressed that the demands study was aimed primarily at water-related or water-enhanced general recreation activities. Recognizing the range of activities which could be construed to apply to this categorization, the field of activities was further narrowed to eight specific general recreation activities which were considered to be found at most water resource developments -- swimming, boating, water skiing, picnicking, camping, sightseeing, nature walks, and hiking. Fishing and hunting are considered in the U. S. Fish and Wildlife Service's report, Appendix G. The demands which have been estimated for the eight selected activities are potential demands which could be met through adequate development and administration if the resources are available. If the resources are not available and/or developed, the demands in one study area could conceivably overflow into any adjoining study area(s) creating an additional demand on its (their) resources. This could have an accumulative effect, particularly when considering several contiguous areas such as the 19 subareas of this study. Because of this effect, it was necessary to assume that the total estimated demands for outdoor recreation opportunities in the 19 subareas would be directed within the Ohio River Basin boundaries through adequate development and administration of basin resources.

A discussion of the demand methodology can best be undertaken by dividing the approach into its four major parts: (1) Applicable Participation Rates, (2) Effective Population, (3) Applicable Rates of Increase in Recreation Demand, and (4) Determination of Recreation Demands. A sample procedure illustrating how these major items were used in determining the demand for water skiing in Subarea D is presented in Appendix I.

a. Applicable Participation Rates. Tables 1.01, 2.01, 3.01, and 4.01 of ORRRC Study Report 19 indicate quarterly recreation activity participation rates of the 1960 population 12 years old and over residing in the four census regions of the United States. A total of twenty-four activities were listed in these ORRRC Study Report 19 tables. For the purpose of this study, ten of the activities were considered as being water-dependent or water-enhanced. Three activities - canoeing, sailing, and other boating - were combined as one so that a total of eight activities were evaluated; swimming, boating, water skiing, picnicking, camping, sightseeing, nature walks, and hiking.

Since the Ohio River Basin lies within three of the Nation's four census regions, weighted annual participation rates for each of the eight activities were determined from the ORRRC data (Study Report 19) on the basis of the portion of the 1960 basin population residing in each region. These adjusted rates were then used in conjunction with the effective subarea populations (see following section) to determine 1960 demands in each of the subareas. No attempt was made to obtain individual subarea participation rates since ORRRC regional participation rates were not considered to be statistically capable of further disaggregation to a subarea level. The adjusted annual participation rates for the basin follow:

<u>Activity</u>	<u>Participation Rate</u>
Swimming	5.89
Boating	2.21
Water Skiing	0.35
Picnicking	3.40
Camping	0.67
Sightseeing	5.87
Nature Walks	2.57
Hiking	0.36

b. Effective Population. Several assumptions were necessary in order to determine the population to be used in conjunction with basin participation rates in obtaining 1960 demands. These assumptions follow:

(1) The recreation market area of each subarea includes the subarea and all standard metropolitan statistical areas within 125 miles(+) of the subarea boundary.

(2) The SMSA's are focal points from which a high percentage of outdoor recreation demand originates.

(3) About 60 percent of outdoor recreation use occurs within 40 miles and 90 percent occurs within 125 miles (30 percent between 40-125 miles) of the point of origination if facilities are available. (SMSA's taken as origination points.)

(4) The total demand of the non-SMSA population of a subarea would be contained within the subarea. (Although it is recognized that demands of a subarea's non-SMSA population would flow to other subareas such as does the SMSA demand, the points of origination are difficult to determine. Therefore, it was assumed, for simplicity, that this non-SMSA demand would balance out between subareas.)

The 40-mile and 125-mile travel distances and the respective percentages of use occurring within these limits were developed from information presented in the California Outdoor Recreation Study. These figures were closely substantiated by the findings of Messrs. Lester G. Duck and Paul F. Beard of the U. S. Army Engineer Division, Ohio River, in their paper of October 8, 1964, entitled "Analysis of Present and Projected Outdoor Recreation Demands and Present and Planned Capacities Associated with the Wabash River Basin Comprehensive Study, Interim Report No. 2." The study by Messrs. Duck and Beard indicated that 90 percent of the visitors to Cagle's Mill and Mansfield Reservoirs, Indiana, traveled 120 miles or less, one way.

The portions of the SMSA populations which would have some effect on subarea demands were obtained by drawing 40 and 125 mile radii circles around the major cities of the SMSAs in each subarea or within 125 miles of the subarea boundaries and determining the proportional part of the area within the 40 and 40-125 mile circles which fell in the subarea. These proportional areas were then multiplied by 60 percent and 30 percent, respectively, of the SMSA population. The resulting figures were considered to represent the portion of the population in an SMSA which would affect the recreation demand within a subarea.

To this effective population of the SMSA's was added the total non-SMSA population of the subarea to determine the total effective subarea population which could be applied to the derived basin participation rates. Although, the participation rates as presented in ORRRC Study Report 19 considered only that part of the population 12 years old and over, the basin participation rates were applied to the total effective population since it was considered that those under 12 would partake in the same activities and at a similar rate as their parents.

c. Applicable Rates of Increase in Recreation Demand. In order to estimate the recreation demands for the target years 1980, 2000, and 2020, rates of increase in demands for each activity were obtained by using as a base the estimates of National percent increases by activities (with opportunity factor) provided in Table 6 of ORRRC Study Report 26.

The estimated percent changes for the 1960-1976 and 1960-2000 periods were plotted graphically for each of the eight selected activities. The percent changes for these eight activities in the years 1980 and 2010 were then determined from the graphs. (The years 1980 and 2010 were those for which population projections were provided by the Projective Economic Study.) These National demand increase rates were then converted to basin demand increase rates by comparing estimated increases in population and per capita income for the basin and the Nation. This was done on the premise that fluctuations in demand parallel closely any fluctuations in per capita income and population and are, in fact, heavily dependent upon these two factors.

Estimates of future National population, basin population, National per capita income, and basin per capita income were obtained from information given in the Projective Economic Study. Comparison of estimated increases in per capita income indicated that the basin's per capita income would increase 1.17 and 1.36 times as much as the Nation for the 1960-80 and 1960-2010 periods, respectively. Increases in the basin's population from 1960 to 1980 and from 1960 to 2010 were found to be .90 and .79 times, respectively, that of the Nation. By combining the proportionate increases in per capita income and population for each period, a factor was determined by which the estimated National demand increases could be converted to basin increases. This method indicated that the 1960-1980 demand increase in the basin would be 1.05 times that of the Nation while the 1960-2010 basin demand increase would be 1.07 times the National figure. These factors were applied to the National demand increase data for each of the eight selected activities (although it is recognized that each activity may not be equally affected by changes in population and per capita income). Thus, estimated increases in demands within the basin were determined for 1980 through 2010 for each activity.

In order to estimate the basin demand increases for the target years 2000 and 2020, it was assumed that the increases from 1980 through 2010 and 2020 would have a linear relationship. Thus, the following demand increase rates were determined for the target years.

Estimated Increase Rates in 1960 Demands*

<u>Activity</u>	<u>1980</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>
Swimming	2.36	4.26	5.21	6.16
Boating	2.44	4.45	5.45	6.45
Water Skiing	3.08	6.15	7.68	9.21
Picnicking	2.00	3.31	3.96	4.61
Camping	3.32	6.92	8.71	10.50
Sightseeing	2.64	5.07	6.29	7.51
Nature Walks	1.86	2.87	3.37	3.87
Hiking	3.22	6.49	8.12	9.75

*Determined from ORRRC as discussed above.

d. Determination of Recreation Demands. The method of approach to estimating future potential recreation demands in the designated target years required that demands first be determined for the base year 1960. This was done by applying the effective populations of each sub-area as obtained in Step 2 to the basin participation rates for each selected activity as derived in Step 1. Estimated activity days for each activity were obtained for all 19 subareas and the total basin in 1960.

The projection of future demands involved application of the individual activity demand increases developed in Step 3 to the activity demands estimated for 1960. In this way estimates of activity days for each of the eight selected activities were developed by subarea for the target years 1980, 2000, 2020.

The resultant demands were expressed in annual activity days which reflect the total use that all facilities offered for a specific activity could expect during the course of the target year. Summing up the activity days for all eight activities in each year produced total annual activity days for selected water-dependent or water-enhanced activities in each subarea. In order to convert these annual activity days into estimates of annual recreation days, it was assumed for purposes of this study that the average person would participate in 2.5 activities during a visit to an area in which the eight activities were available. Annual recreation days for each subarea were determined by dividing the estimated total annual activity days by 2.5. The estimates of annual recreation days represent potential demands which would obtain within the study area if facilities were available. Projected annual activity day and recreation day demands in the basin and each subarea are tabulated in Appendix I.

C. Recreation Supply.

1. Existing Areas. The inventory of existing recreation facilities in the Ohio River Basin was developed primarily from the Bureau's Nationwide Planning effort and included selected areas which were in operation in 1960. The inventoried recreation supply shows over 58 million recreation days were recorded at basin development in 1960. Inventoried areas were those administered by Federal, state, and local agencies. Privately developed resources were not included in the inventory since adequate information could not be readily obtained. Memorials and monuments administered by the state and local recreation areas having less than 50 acres of water were excluded from the inventory as being beyond the scope of the study and to orient the study more toward water resource developments. Tabulations of inventory data are presented in Appendix II. Locations of the inventoried existing areas are shown on Plates 9-14.

a. Available Acreage. Summarization of inventoried facilities indicates that the basin offered over four million acres of recreational lands and waters to the public in 1960. Federal developments accounted

for approximately 67 percent, state areas 30 percent, and major local areas about three percent of the total recreation acreage.

Surface area of water made up in excess of 248,000 acres or about six percent of the basin's 1960 recreational area. About 73 percent of this water surface was provided on Federal areas while 19 percent was on state lands and the remaining 8 percent in major local developments.

These comparisons of administrative units do not represent a true numerical picture of total land ownership characteristics since not all state and locally administered lands were included in the inventory. However, most of the water areas were inventoried, and the figures do show that Federal development of water resources constituted by far the major source of impounded water for recreational activities. State and local agencies have recognized the recreational drawing power of these Federal water areas by acquiring, developing, and/or administering lands adjacent to the impoundments. Recent passage of the Federal Water Project Recreation Act (P. L. 89-72) may result in an even greater participation by state and local agencies in recreational development and administration at Federal water projects.

Again, these comparisons are for the basin as a unit and do not hold true for all subareas. Large scale Federal ownership in Subareas A, B, G, M, O, and S create an imbalance which is not offset by the state and local ownerships that equal or greatly exceed the Federal lands in the majority of the subareas.

b. Attendance. Approximately 41 percent of the total 58 million recreation days recorded in 1960 occurred at Federal developments while 46 percent were listed at state administered facilities and 13 percent at major local recreational areas. Visitations to existing individual recreation areas are shown on the inventory forms of Appendix II and are summarized in Appendix I, Table III. The attendance figures show that although the greater recreational acreage is owned by Federal agencies, state developments attract more total visitors and more visitors per acre - 21 visitors per acre at state areas as compared to 9 visits per acre at Federal developments. Major local areas show a use pressure of about 66 people per acre annually.

The more intensive use of state and major local areas could be attributed largely to the fact that state and local recreational areas are developed specifically for recreation, whereas, recreational development at Federal areas - Corps of Engineers reservoirs, national forests, Soil Conservation Service watershed projects - has been incidental to one or more other project purposes. Much of the land acquired by the Federal agencies is used for primary project purposes, and recreational development of the remaining lands is not nearly as intensive as on state or local agency lands.

The inventoried major local areas lie within or near population concentrations and are more readily accessible to a large number of people.

Therefore, intensive development is required. Much of the Federal developments are further removed and relatively less accessible from the population centers.

Publicity also plays a major role in the use pressure of developed areas. State and local areas generally are much more publicized than Federal developments (with the exception of national parks and monuments).

2. Potential Areas. The inventory of potential recreation facilities in the basin was developed essentially from the same source (Bureau of Outdoor Recreation's Nationwide Plan) as was the data for existing areas. Supplemental information was obtained by field evaluations and pamphlets and data made available by the Corps of Engineers, Soil Conservation Service, and other agencies. Inventory data are tabulated in Appendix II. The locations of inventoried potential facilities are illustrated on Plates 15-20.

Approximately 1,331,000 acres of recreational lands are programed for future acquisition or have been acquired and made available for public use since 1960. If all the currently programed areas were acquired, these potential lands would increase the total 1960 inventoried acreage by 32 percent. Major local areas would more than triple in total ownership while state ownership would increase 41 percent and Federally-owned acreage would go up 21 percent.

D. Recreation Needs.

1. General. In order to develop an indication of need for additional facilities required to meet the projected recreation demands within the basin, the estimated demand in the target years were related to the facility supply available in the base year, 1960. The figures which evolved are intended primarily to indicate the increase in recreation needs which can be anticipated in the basin and to point out areas of greatest urgency for facility development. The estimates of needs in recreation days are indexes of relative needs and are not offered as a measure of the expected use which additional facilities should be capable of accommodating. It should be recognized that some activities not considered to be water-related could also be developed at areas that are primarily water-oriented; i.e., horseback riding, bicycling, etc. The basin's water-oriented outdoor recreation needs (in terms of annual recreation days use for which additional facilities should be provided) are as follow:

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Annual Recreation Days (millions)	105.4	332.3	651.9	971.3

While a general increase in facility development will be required for all of the eight selected water-related activities, construction of camping, hiking and water skiing facilities should be undertaken at an

even faster rate to offset the expected rapid expansion in demands in these activities. The geographic areas of the basin in which the recreation needs are greatest is better depicted in the evaluations of individual subareas.

2. Methodology. The recreation demands which were developed by the methodology discussed earlier in this chapter indicate the amount of use which could be expected to occur if adequate facilities for eight selected activities were made available. The inventory of recreation facility supply in the base year (see Appendix I) includes Federal areas, state areas exclusive of historical monuments, and major local areas having over 50 acres of water available. It is recognized that considerable facility supply may exist in private developments and other areas not included in the inventory. It should also be recognized that inventoried use of facilities in some cases includes visitations which are beyond the present (1960) design capabilities of the existing developments (overuse). Attempts to determine the amount of this overuse, or the percentage of total use which was actually designed for, failed due to the lack of adequate data and to a great variance between states in design standards. The inventory also includes visits to facilities for other than the eight selected activities. In spite of these recognized drawbacks and because of the unavailability of a better common base, the inventoried 1960 visitation in each subarea and the basin was utilized in conjunction with estimated demands to determine relative needs.

It is recognized that some currently programmed facilities will be developed to offset a portion of the estimated recreational needs in the target years. However, the scheduling for development of these facilities cannot be adequately determined, therefore, the recreation needs were developed relative to the inventoried 1960 supply.

The relative recreation needs are necessarily presented in numbers of recreation days since inventories of use are in total annual visits, or annual recreation days, and recreation demands have been determined in recreation days as explained in the discussion of demand methodology. The recreation needs for the basin and each subarea are tabulated in Appendix I, Table IV.

IV. OUTDOOR RECREATION PLAN

A. Appraisal of Recreation Potentials. Several types of natural recreation resources are available for development throughout the basin. The forested hills of West Virginia, western Pennsylvania and eastern Kentucky offer an area of great potential for recreation development. The resources of this region are aesthetically attractive and suitable for water-related recreation development, but the area is sparsely populated and the topography which makes the region attractive also serves to limit accessibility. Intensive development of the water-related recreational resources accompanied by adequate highway construction would serve to meet much of the recreation needs in the eastern portion of the basin. Proper development of water resources would also attract users from the resource-poor population concentrations to the east.

The navigable waterways of the Ohio River Basin have been substantially deleted from this study primarily because adequate data were not available to properly evaluate the recreational use of these rivers. This lack of data was due largely to the fact that most river bank development is now privately operated and a thorough inventory of the private area was not attempted. It is considered that proper development of lands along the Ohio River and its major tributaries could alleviate a substantial portion of the basin's recreation needs; particularly in the area of boating, water skiing, swimming, picnicking, camping, and sightseeing. Such development would be greatly dependent on proper water pollution controls.

In 1963 a special Wild Rivers Study Team was appointed by the Secretaries of Interior and Agriculture to study the need for preservation and conservation of a nationwide system of wild rivers particularly suited to recreation. The rivers which the Team selected for preliminary consideration included all or one or more segments of the following rivers in the basin: Blue in Indiana, Cheat and Greenbrier in West Virginia, Cumberland in Kentucky and Tennessee, Little Wabash in Illinois, and the Youghiogheny in Maryland and Pennsylvania. Although none of these rivers have yet received detailed study, the Youghiogheny in Maryland and Pennsylvania is designated for study in a National Wild Rivers bill now pending in Congress. The Little Miami and Little Beaver in Ohio and the Allegheny and Clarion in Pennsylvania are also included for study in the pending bill. With this in mind, care should be taken in the selection and development of water resource areas to meet the recreation needs of the basin. Development should not be undertaken at the expense of destroying natural features which are in themselves a source of attraction and joy to the public.

In April 1964, the President's Recreation Advisory Council recommended that a National program of scenic roads and parkways be developed to provide scenic driving opportunities as part of an overall recreation program. At the Council's request, the Bureau of Public Roads of the Department of Commerce undertook a one-year study of a National program of scenic roads and parkways. The Bureau of Public Roads requested the

various states to select routes or segments of routes which might qualify in a National program. Several bills are currently pending in Congress for establishing or studying six scenic roads and parkways in the Ohio River Basin. Authorization is being sought for studying a George Rodgers Clark Recreation Way in Illinois; and for establishing the Allegheny Parkway in West Virginia, Kentucky, and Maryland; Allegheny-Cumberland Parkway in West Virginia, Kentucky, and Virginia; Lincoln Trail Memorial Parkway in Kentucky, Indiana, and Illinois; Ohio River National Parkway in Indiana; and Wabash River National Parkway in Indiana. Such a system of scenic routes, once developed, would enhance the traveler's recreation experience en route to and from recreational developments throughout the basin.

The separate states within the basin have compiled comprehensive state-wide outdoor recreation plans in conjunction with the Land and Water Conservation Fund Act of 1965. These plans include five-year action programs for acquisition and construction and should be carefully considered in determining resources to be developed for recreational use.

Local and state agencies have programmed for a considerable step-up in acquiring and developing and/or administering recreational lands. The recently enacted Public Laws 88-578 (Land and Water Conservation Fund Act of 1965, 89-72 (Federal Water Project Recreation Act), and 89-117 (Housing and Urban Development Act of 1965), the Appalachian Program, the Food and Agriculture Act of 1965, and other legislation are expected to act as additional stimuli to further increases in recreational land acquisition and development by all levels of government.

Potential areas which have been programmed for future development or which have been developed since 1960 will do little more than meet part (70-75 percent) of the estimated 1960 recreational needs of the basin. A much accelerated program of acquisition and development will be required to satisfy the exploding recreational needs for the target years.

B. Establishment of Goals (Resource Requirements). Adequate land, water, and facility development must be provided to meet the basin's unsatisfied demands as set forth in the preceding chapter. The multiplicity of administering agencies and organizations throughout the basin and their capabilities for providing variable degrees of recreation development precluded the establishment of a unilateral standard of resource requirements. Therefore, a range of land and water acreage requirements and development costs was developed to indicate an upper and lower limit of additional resources and funds which would be necessary to adequately meet the unsatisfied demands for water-related outdoor recreation opportunities in the basin. The resource requirements and development costs for each of the target years are illustrated in the table on the following page.

Determination of a range of requirements for land and water necessitated the development of standards of actual area required by an individual

OHIO RIVER BASIN
RESOURCE REQUIREMENTS

<u>Year</u>	<u>Type of Development</u>	<u>Unsatisfied Demand (millions)</u>	<u>Acres Required</u>			<u>Development Costs (millions)</u>
			<u>Land</u>	<u>Water</u>	<u>Total</u>	
1960	Extensive	105.4	853,700	833,700	1,687,400	\$ 474.3
	Intensive		170,700	50,600	221,300	237.2
	Average		426,900	217,100	644,000	332.0
1980	Extensive	332.3	2,857,800	2,904,300	5,762,100	1,495.4
	Intensive		638,000	176,100	814,100	747.7
	Average		1,428,900	757,600	2,186,500	1,046.7
2000	Extensive	651.9	5,801,900	6,056,200	11,858,100	2,933.6
	Intensive		1,160,400	365,100	1,525,500	1,466.8
	Average		2,901,000	1,577,600	4,478,600	2,053.5
2020	Extensive	971.3	8,741,700	9,207,900	17,949,600	4,370.8
	Intensive		1,748,300	563,400	2,311,700	2,185.4
	Average		4,370,800	2,399,100	6,769,900	3,059.6

for each of the eight selected activities. These standards were developed as composites or averages from several sources of information and are considered to offer optimum area for facility development. In order to apply these standards to the basin's unsatisfied demands, the unit areas were adjusted to reflect the percent of annual use which is estimated to occur in each activity for each of the target years. The standards were further adjusted to consider an internal buffer area required between facilities, the degree of development contemplated, and conversion of annual use to a design load. The several adjustments resulted in the land and water factors found in the table of resource requirements. Cost factors were determined from averages of costs for Federal, state, and local facilities offering the selected degrees of development.

C. Alternatives. Sufficient resources to meet the recreation needs of the basin could be provided by extensive development, intensive development, any combination of the two, or an average or reasonable degree of development somewhere between the two extremes.

Extensive development anticipates a large amount of buffer area (approximately 90 percent of total acquired lands) and is most indicative of Federal areas or state forest areas. Although such development is desirable in some instances, it would require acquisition of a considerable amount of land beyond that which is actually necessary to adequately accommodate the basin's unsatisfied demands. Costs would also be higher than any other development considered. Extensive development would not be recommended to satisfy the total unmet demands.

Intensive development considers facility construction on one-half the total acquired acreage. Such development would most likely occur at areas in close proximity to population centers and would be administered by local or, possibly, state agencies. Although land acquisition would be comparatively small, development of this type would provide a recreation experience of reduced quality and would not be recommended to meet the total unsatisfied demands of the basin. However, it is anticipated that the percent of total needs being met by intensive development will increase in the future due to limitations on available lands.

Average development would consist of recreation development on about 20 percent of acquired lands. It is considered that this type of development could be constructed and administered by Federal, state, or local agencies. Such development would meet the basin's total unsatisfied demands in a reasonable manner, but it should be recognized that a mixture of development types would be preferred, and, in fact, will occur in light of current programs by the various agencies.

D. Features of the Plan. The estimates of requirements for land and water to meet unsatisfied demands indicate that in the year 2020, assuming average development, approximately 4.4 million acres of land and 2.4 million acres of water will be needed in addition to that available in 1960. The inventory of potential shows a total of about

0.9 million acres of land and 0.4 million acres of water are currently programed for acquisition or development by Federal, state and local agencies. Assuming an average type development would occur on these programed areas, this would reduce the total requirements in 2020 to 3.5 million land acres and 2.0 million water acres. This total requirement could be further reduced by converting to average type development some lands now in public ownership that are less than 20 percent developed for recreation. More intensive development of existing areas would reduce the total cost of recreational development through the savings in land acquisition, but the quality of existing recreation opportunities could be adversely affected by too intensive development. Also, the amount of existing public lands which could be converted to recreation development or to more intensive development would be limited by other purposes to be served by those lands.

Development of the natural resource potentials in the northeastern portion of the basin, lands and access points along the navigable waterways of the basin, a system of wild rivers, and scenic roads and parkways throughout the basin would provide considerable recreation opportunity, but the present uncertainty of the programs and the limited scope of this study precludes an estimate of the degree to which such development would aid in satisfying the basin's unmet demands.

While Federal agencies would appear to be better capable of developing most of the water areas required in the basin, in view of current policy the responsibility for operating and maintaining sufficient land areas to accommodate the recreation need will fall mainly on state and local agencies.

Several suggested approaches to meeting the unsatisfied demands follow:

1. Single purpose water resource projects which, through maintenance of a stable pool and acquisition and development of lands solely for recreation, would make optimum use of the recreation potential of the site.
2. Greater stress on obtaining local sponsorship of recreation development on small watershed projects, particularly in the vicinity of population concentrations.
3. More development of lands and access points, i.e., old lock and dam sites and embayments at tributary junctures, along navigable waterways.
4. Recreational zoning and development of lands adjoining existing water areas, such as local water supply reservoirs, lakes, etc.
5. Restudy or, if necessary, reauthorization of existing multipurpose water resource projects to consider recreation development.
6. Setting aside of natural areas and wild rivers to preserve and protect recreation values.

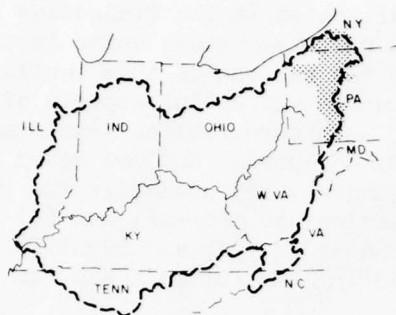
7. Planning and development of highway networks between urban areas and recreation resources; development of a system of scenic roads and parkways.
8. Coordination of the recreational programs of all public agencies planning or administering recreation facilities in the basin.

V. SUBAREA EVALUATIONS

The 19 economic subareas which were delineated in the Projective Economic Study of the Ohio River Basin were the principal study units in this comprehensive recreation study. It is the purpose of this section to: (1) identify the general physical, economic and social aspects of each subarea in light of their relationship to the recreation development of the study area, (2) identify the estimated current and projected demand for water-oriented recreation in the subarea, (3) summarize the recreation resources of the subarea and the recreation use thereof, and (4) report and analyze the imbalance between demand and supply and identify the opportunities available to satisfy existing and future needs for water-oriented recreation.

The locations of the subareas are shown on Plate 1. The subareas are also illustrated on Plates 3 through 20 which locate interstate highways and existing and potential recreation facilities in the various states and subareas. Tabulations of outdoor recreation demands, supply, and needs in the subareas are presented in Tables I through IV, Appendix I.

A. Allegheny



the subarea. Rugged topography, largely forested, offers an aesthetic appeal to its abundant outdoor recreation resources. The availability of both resources and people combine to make the Allegheny a key sub-area in the Ohio River Basin in terms of both total demands and potential for meeting outdoor recreation needs.

Subarea A is not highly urbanized and is likely to remain more rural than the Ohio River Basin as a whole, according to the Projective Economic Study. Johnstown, the only subarea SMSA, recorded a population of 280,700 in 1960, less than 35 percent of the total subarea population (805,100). Approximately 60 percent of the total subarea population is rural.

Historically, coal mining has been a major source of economic activity in the Allegheny. During the past few decades, however, coal mining as a source of employment has steadily declined to where currently it accounts for only six percent of the labor force. Manufacturing, especially steel production in the Johnstown SMSA, has been the mainstay of the subarea economy with one-third of the labor force engaged in this activity. The entire Allegheny is experiencing a period of economic transition which is expected to continue through the next few decades. Considering the growing demand for outdoor recreation originating in eastern metropolitan centers and the largely untapped resources for this purpose in the Allegheny, the tourism-recreation industry can be expected to become an increasingly important member of the subarea's economic family.

Difficulty of access, due to rugged topographical conditions throughout the greater portion of the subarea, is a major barrier to the Allegheny becoming an outdoor recreation mecca. An accelerated program of interstate, primary, and secondary road construction is necessary if current and projected demands for recreation are to be met. Completion of I-80 will open the mid-section of the subarea to recreation. The Pennsylvania Turnpike, crossing the southernmost arm of the subarea below Johnstown, brings the east-west traveler within the general vicinity of the Allegheny's recreation resources. But north-south access to the subarea is

notably deficient. The improvement of approved routes under the Appalachian development highway program would aid in providing access in the southern portion of the subarea.

2. Recreation Demands. The subarea's estimated water-oriented outdoor recreation demand (11.2 million recreation days) for the base year 1960 was fifth highest in the Ohio River Basin. This relatively high demand for recreation opportunities in the Allegheny can be traced to the impact of metropolitan centers in or near the study area. Eleven SMSA's in the vicinity of the subarea and the Johnstown SMSA within the Allegheny account for approximately 43 percent of the effective population having an impact on subarea demands. Demand for water-oriented recreation is projected to more than double by 1980 and the estimate for 2020 exceeds six times the 1960 demand. Outdoor recreation demands in the subarea are indicated in the following tabulation:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	7,776	18,351	33,126	49,900
Boating	2,918	7,120	12,985	18,821
Water Skiing	462	1,423	2,841	4,255
Picnicking	4,489	8,978	14,858	20,694
Camping	885	2,938	6,124	9,292
Sightseeing	7,750	20,460	39,292	58,202
Nature Walks	3,393	6,311	9,738	13,131
Hiking	<u>475</u>	<u>1,530</u>	<u>3,083</u>	<u>4,631</u>
Total Activity Days	28,148	67,111	122,047	176,926
Total Recreation Days (millions)	11.2	26.8	48.8	70.8

3. Recreation Supply. Displaying a wealth of outdoor recreation resources, the Allegheny ranks as the second highest subarea in the entire Ohio River Basin in terms of total visitation and is first in land and water acreages set aside to meet demands for outdoor leisure opportunities. Visitation to the subarea's inventoried facilities totaled 9.0 million in 1960 while land and water acreages which supported this visitation exceeded 895,000 acres. Six Corps of Engineers reservoirs (East Branch Clarion, Tionesta, Youghiogheny River, Mahoning Creek, Crooked Creek, and Conemaugh River) involving 5,400 acres of water accounted for 2.3 million recreation days visitation in 1960. The Allegheny National Forest is a major source of outdoor recreation activity. The forest recorded a 1960 visitation of nearly 1.2 million to 35

recreation areas and four county units. Eight state parks, six state forests, six recreation areas (State Fish Commission) and a small watershed project form the balance of inventoried outdoor recreation resources in the subarea. The 1960 inventoried visitation and land and water acreages are indicated on the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	497,226	398,198	NA	895,424
Water	6,187	13,177	NA	19,364
Recreation Days (millions)	3.6	5.4	NA	9.0

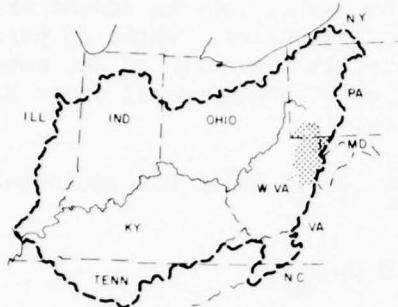
4. Recreation Needs. The estimated outdoor recreation needs for target years in the Allegheny Subarea are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	2.2	17.8	39.8	61.8

Comparisons of outdoor recreation demands (11.2 million) with supply (9.0 million) at inventoried facilities indicated a 2.2 million net need for additional outdoor recreation development for the base year. This near balance between demand and supply is largely attributed to the relatively low subarea population in relation to the number of developed recreation areas. This low net need finding for base year 1960 should not be construed as a reason to halt further recreation planning. Projected future needs in the Allegheny Subarea will require both new and expanded facilities. In addition, the Allegheny, with its abundant natural resources for outdoor recreation, is in a position to help satisfy water-oriented recreation needs in neighboring subareas, such as the Pittsburgh SMSA, where resources are relatively lacking.

B. Monongahela



highest in the entire basin, yet both demand and existing use is relatively low. Imbalance in recreation demands and needs in adjoining subareas adds complexity to the Monongahela recreation picture.

A little more than one-half million people reside in the Monongahela Subarea. According to the Projective Economic Study, the possibilities of any substantial growth in population is slight. With the single exception of counties bordering the Pittsburgh SMSA, most of the subarea is experiencing a depressing loss of employment opportunities in resource-based industries. The subarea's inaccessibility compounds this problem. Containing no SMSA's, Subarea B's population is projected to increase only 50,000 between 1960 and 1980, one of the lowest gains in the basin. Historically, mining has been the mainstay of the Monongahela's economy. Since 1930, however, the number of workers engaged in mining has drastically declined to where it accounts for only 14 percent of the labor force today. Growth in manufacturing and services has largely offset employment losses in the mining industry. But according to the Projective Economic Study, very little growth is anticipated in either population or labor force due primarily to the subarea's relative inaccessibility and employment declines in resource-based industries. Based upon projected demands for the subarea, no great economic surge can be expected from the tourism-recreation industry unless improved transportation systems are provided to open the subarea's resources to the populous eastern market.

The primary and secondary road systems of the Monongahela subarea are inadequate to support little more than a medial recreation industry. Access problems discourage any substantial use of the subarea's resources for recreation pursuits. U. S. Highways 50 and 119 bisect the subarea, and Interstate Route 79 will aid in north-south travel. East-west travel will be augmented by the improvement of selected routes under the Appalachian development highway program.

Improvement in the water quality of the streams would improve the recreational attractiveness of the Monongahela.

2. Recreation Demand. The estimated demand for water-oriented outdoor recreation in the Monongahela Subarea for 1960 was 7.0 million recreation days. Nearly two-thirds of the total subarea demand originates within the confines of the subarea boundaries. About 25 percent can be traced to the Pittsburgh SMSA, just to the north of the subarea. The remaining demand, about 10 percent, originates from 11 other SMSA's outside the subarea, but within 125 miles.

Estimated outdoor recreation demands for target years are indicated in the following table:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	4,833	11,406	20,588	29,771
Boating	1,813	4,424	8,068	11,694
Water Skiing	287	884	1,765	2,643
Picnicking	2,790	5,580	9,235	12,862
Camping	550	1,826	3,806	5,775
Sightseeing	4,816	12,714	24,417	36,168
Nature Walks	2,109	3,923	6,053	8,162
Hiking	295	950	1,914	2,876
Total Activity Days	17,493	41,707	75,846	109,951
Total Recreation Days (millions)	7.0	16.7	30.3	44.0

3. Recreation Supply. The Monongahela National Forest is a key recreation resource in Subarea B, both in terms of visitation and area of land and water for recreation. In 1960, the national forest accommodated 992,000 visitors or approximately 50 percent of the total subarea recreation use. The remaining visitation occurred at 11 state parks, five state forests, five fish and game areas, a national battlefield site, and a Corps of Engineers' reservoir. Tygart Reservoir (1,700-acre recreation pool) accommodated approximately one-half million visitors in 1960. Total inventoried visitation and land and water acreages in the Monongahela Subarea for 1960 are indicated in the following table.

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	407,946	103,305	NA	511,251
Water	3,182	303	NA	3,485
Recreation Days (millions)	1.1	1.4	NA	2.5

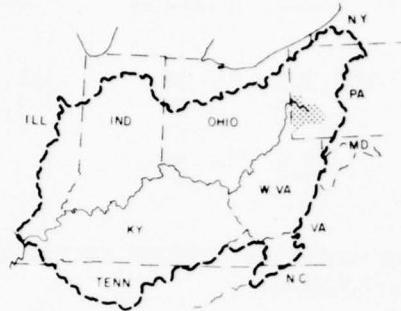
4. Recreation Needs. Projected water-oriented outdoor recreation needs for the Monongahela Subarea are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	4.5	14.2	27.8	41.5

Analysis of outdoor recreation demand (7.0 million recreation days) with supply (2.5 million recreation days) and resources (511,251 acres of land and water) at inventoried facilities in 1960 revealed an imbalance between supply and demand resulting in an approximate need to accommodate 4.5 million additional recreation days. Increased facility development can be expected to meet a major portion of current and projected needs. The Spruce Knob-Seneca Rocks National Recreation Area, as approved by Congress in 1965, will add 100,000 acres to the subarea's recreational resources. Two proposed Corps of Engineers reservoirs (Rowlesburg and Stonewall Jackson) will add a total of nearly 10,000 acres of water and will be able to support approximately 1.0 million recreators annually. Expansion and new development of six state parks, one state recreation area, two state forests, and a state fish and game area in the tri-state subarea will assist greatly in meeting unsatisfied demands. Although no estimation of visitation is available, the Wheeling Creek Watershed Project (Public Law 566), 191,180 acres of which 19,000 acres will be water, can be a major recreation attraction in the subarea.

C. Pittsburgh SMSA



rivers converge to form the Ohio River. The resources of the subarea are not considered capable of satisfying the demands created by such a large metropolitan center.

Over 2,405,000 people resided in this subarea and accounted for more than 12 percent of the basin's population in 1960. Over 80 percent of the subarea's population reside in urban places. The Projective Economic Study forecasts a 10 percent population growth by 1980 and nearly a 30 percent increase by the year 2000. This growing population concentration can be expected to continue to have a profound impact on recreation planning both within and in the vicinity of the Pittsburgh SMSA.

The relatively low increase in projected population is due largely to employment declines in the subarea's primary economic activities, mining and manufacturing. Mining, once a key source of employment, is expected to engage less than one percent of the labor force by 1980. According to the Projective Economic Study, employment in trades and services will experience the greatest economic growth.

Primary transportation patterns in this subarea tend to implement the movement of recreational travelers. The Pennsylvania Turnpike crosses the subarea offering the major east-west traveler access to the subarea's limited resources, and, conversely, affords the SMSA's population access to the resources in adjoining subareas. Pittsburgh itself, serves as the hub of a system of primary and secondary roads. The major transportation problem, recreationally speaking, is how to move the potential recreator from the expressway to primary outdoor recreation complexes. A system of scenic roads and parkways originating and terminating at an expressway could be one solution to this recreation travel barrier.

2. Recreation Demand. The estimated annual demand for water-oriented outdoor recreation opportunities for the Pittsburgh SMSA subarea totaled 13.0 million recreation days in 1960. Projected demands for target years are indicated in the following table:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	8,975	21,181	38,234	55,286
Boating	3,368	8,218	14,988	21,724
Water Skiing	533	1,642	3,278	4,909
Picnicking	5,181	10,362	17,149	23,884
Camping	1,021	3,390	7,065	10,720
Sightseeing	8,945	23,615	45,351	67,177
Nature Walks	3,916	7,284	11,239	15,155
Hiking	<u>548</u>	<u>1,764</u>	<u>3,556</u>	<u>5,343</u>
Total Activity Days	32,487	77,456	140,860	204,198
Total Recreation Days (millions)	13.0	31.0	56.3	81.7

The 1960 estimated demand (13.0 million) was based upon an effective population of 1,523,800. The demand methodology used in this study resulted in much of the recreational demand of the Pittsburgh SMSA population being distributed to adjoining subareas. This appears logical in view of the relative unavailability of water resources within the Pittsburgh SMSA.

3. Recreation Supply. Although four state parks, a Corps of Engineers reservoir, two State Fish Commission recreation areas and a county park fall within the Pittsburgh SMSA, the subarea's total inventoried land and water area for recreation covers only 16,127 acres, second lowest in the entire Ohio River Basin. Corresponding visitation to these areas was approximately 3.3 million in 1960, also relatively low. North Park, operated by the Allegheny County Park Department, accounted for 75 percent of the 1960 subarea visitation. The remaining 25 percent occurred at the six inventoried state areas and the Loyalhanna Reservoir. Total land and water acreages and visitation in Subarea C for the base year 1960 were as follows:

EXISTING RESOURCES AND VISITATION, 1960

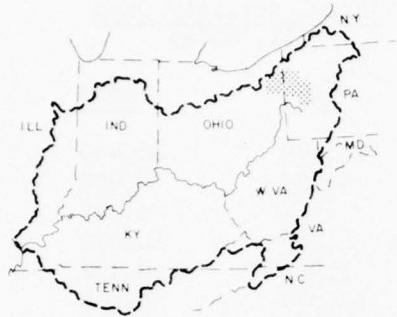
	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	3,600	10,267	2,260	16,127
Water	250	346	87	683
Recreation Days (millions)	0.1	0.7	2.5	3.3

4. Recreation Needs. Comparisons of estimated outdoor recreation demands (13.0 million recreation days) with existing use (3.3 million) in 1960 at inventoried facilities in the Pittsburgh SMSA indicated that only 25 percent of the total estimated demands was being met. This imbalance between demand and supply (9.7 million need) is one of the largest in the basin and can be directly traced to the relative scarcity of developed land and water acreages for water-oriented recreation pursuits. The current and projected needs for target years are as follows:

OUTDOOR RECREATION NEEDS				
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	9.7	27.7	53.0	78.4

An inventory of potential sites programmed for construction indicates that these new facilities will fall far short of meeting even current needs. Programmed facilities include a 1,500-acre state park with 100 acres of water, a yet unnamed 2,275-acre park planned by the Washington County Planning Commission, an unnamed 300-acre park by the Westmoreland County Recreation Commission, and two Soil Conservation Service watershed projects (a 50-acre lake on Harmon Creek and a 200-acre lake on Cross Creek). It is readily apparent that a relatively large portion of the projected unmet need must be directed at recreation sites outside the subarea. The Allegheny, Monongahela, and Kanawha-Little Kanawha Subareas can be expected to absorb some of the Pittsburgh needs if adequate facilities and access are provided.

D. Beaver



and the resulting pollution, has made the Beaver and its tributaries largely unsuited for recreation.

The Beaver's 864,100 inhabitants in 1960 represent less than five percent of the total basin populace. The Youngstown-Warren SMSA, located in two of the five subarea counties, contained nearly 60 percent of the total Beaver population. The Projective Economic Study forecasts the subarea population to increase about 12 percent by 1980 and approximately 36 percent by the year 2000.

Manufacturing, especially production of steel, has historically held the key to the Beaver's economic welfare. In 1960 it accounted for 44 percent of the labor force. Projected declines in metals employment in the subarea during the next two decades is expected to be offset by increases in machinery sectors. Projected outdoor recreation demands for the subarea indicate no revolutionary trends in the economic impact of the tourism-recreation industry. However, the close proximity of the Beaver Subarea to large metropolitan centers warrants further investigation of the recreation market for economic welfare of the subarea.

The transportation corridors which serve the Beaver's industrialized complex also afford access to recreational areas within the subarea.

2. Recreation Demand. The estimated annual outdoor recreation demand for water-oriented leisure pursuits in 1960 was 7.6 million recreation days. This demand is projected to reach 18.2 million by 1980 and exceed 48.0 million by the year 2020. Roughly 60 percent of the Beaver Subarea's demand originates in standard metropolitan statistical areas within the subarea's zone of influence (125 miles). The Beaver's single SMSA accounts for about 17 percent of the total demand while 11 SMSA's in adjoining subareas were the source of 43 percent. The remaining 40 percent can be traced to the subarea population outside the Youngstown-Warren SMSA. Estimates of annual demand for target years are indicated in the table on the following page.

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	5,272	12,442	22,459	32,476
Boating	1,978	4,826	8,809	12,758
Water Skiing	313	964	1,925	2,883
Picnicking	3,043	6,086	10,072	14,028
Camping	600	1,992	4,152	6,300
Sightseeing	5,254	13,870	26,638	39,458
Nature Walks	2,300	4,278	6,601	8,901
Hiking	<u>322</u>	<u>1,037</u>	<u>2,090</u>	<u>3,140</u>
Total Activity Days	19,082	45,495	82,739	119,944
Total Recreation Days (millions)	7.6	18.2	33.1	48.0

3. Recreation Supply. Outdoor recreation opportunities for the highly industrial centers of the subarea have increased during the last two decades. The completion of the 7,300-acre Mosquito Creek Reservoir by the Corps of Engineers in 1944 introduced the region to recreational opportunities at manmade impoundments. During 1960, over 554,000 people visited the reservoir and an additional 266,600 took advantage of recreation facilities provided by the Trumbull County Metropolitan Park adjoining the reservoir. Mill Creek Park, another major local area, accommodates approximately one million visitors annually while the balance of subarea visitation occurs at two fish and wildlife areas in Ohio, and a state park and State Fish Commission recreation area in Pennsylvania. The following chart summarizes the subarea's existing resources and 1960 visitation:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	11,200	7,362	2,383	20,945
Water	7,300	115	200	7,615
Recreation Days (millions)	0.5	(0.03)	1.3	1.8

4. Recreation Needs. Comparisons of estimated demand (7.6 million recreation days) with visitation at inventoried facilities in the Beaver Subarea (1.8 million) reveals an unmet need of 5.8 million recreation

days. Less than 25 percent of the subarea's estimated demand was being met in 1960. Projection of recreation needs indicates the following increases for target years.

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	5.8	16.4	31.3	46.2

An inventory of potential recreation opportunities in the Beaver Subarea discloses several projects of major significance in meeting both subarea and basin needs. The Lake Erie-Ohio River Canal, if authorized, would create a reservoir of over 66,000 acres capable of accommodating an estimated annual visitation of 20,000,000. If constructed, this facility can be expected to satisfy a substantial portion of the subarea's recreation needs.

The recently completed 3,560-acre Shenango Reservoir in Mercer County, Pennsylvania, is expected to satisfy more subarea needs, approximately 225,000 visitors annually. Two state parks, a fish and game area, and a watershed project round out the inventoried potential recreation areas designed to meet part of the estimated needs. The watershed project, the 1700-acre Sandy Creek impoundment, will be capable of accommodating 200,000 people annually according to Soil Conservation Service estimates.

The greater portion of the imbalance between supply and demand, currently and in the future, will be probably alleviated if the Lake Erie-Ohio River Canal project is constructed. Otherwise, it will be necessary for residents of the Beaver Subarea to seek future outdoor recreation opportunities in adjoining subareas.

E. Upper Ohio



largely centered along the lower reaches of tributaries which empty into the mainstem of the Ohio River within subarea boundaries.

The Upper Ohio's 700,700 inhabitants in 1960 represented less than four percent of the total basin populace. Approximately 56 percent of the subarea population is classified as urban, residing primarily within the two SMSA's. According to the Projective Economic Study, the steel-manufacturing centers of Wheeling and Steubenville-Weirton are not expected to experience any significant growth. Projected population increases for the subarea are relatively low. The study indicates a six percent population increase by 1980 and a 22 percent gain by the year 2000.

Manufacturing, primarily steel, is the leading source of employment and economic activity in the Upper Ohio. Roughly 35 percent of the labor force is engaged in this activity at the present time. The trades and services category accounts for an additional 35 percent of the total labor force of 231,600. Economic expansion in the subarea is projected to largely occur downstream from the two SMSA's. Likewise, any tourism-recreation expansion will occur primarily in these downstream counties. Growth in the outdoor recreation industry can be expected to assist in establishing a more diversified economy in the Upper Ohio.

As in most river-dominated regions, the Upper Ohio's transportation network closely corresponds with the Ohio River valley corridor. I-79 roughly follows this north-south traffic pattern joining the Wheeling and Charleston SMSA's. I-70 serves Wheeling and the subarea in its east-west traffic pattern. As new recreation sites are developed the need for improvement of secondary roads to serve the recreator will become increasingly evident. The improvement of certain routes approved for the Appalachian development highway program will provide better access for recreation.

2. Recreation Demand. The estimated demand for water-oriented outdoor recreation in the Upper Ohio Subarea nearly equaled its neighboring subarea to the north (Beaver) during 1960. Less than five percent of the total Ohio River Basin demand, or approximately 7.5 million recreation days, was accounted for by the subarea in that year. This demand is projected to more than double by 1980 and reach 46.9 million by the year 2020. Of the total subarea demand, only 12 percent originates from the Wheeling and Steubenville-Weirton SMSA's and 40 percent from the remainder of the Upper Ohio Subarea. A large percent of the demand originates at 14 SMSA's adjoining the subarea.

Projected demands for target years follow:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	5,153	12,161	21,952	31,742
Boating	1,934	4,719	8,606	12,474
Water Skiing	306	942	1,882	2,818
Picnicking	2,975	5,950	9,847	13,715
Camping	586	1,946	4,055	6,153
Sightseeing	5,136	13,552	26,040	38,571
Nature Walks	2,248	4,181	6,452	8,700
Hiking	315	1,014	2,044	3,071
Total Activity Days	18,653	44,472	80,878	117,244
Total Recreation Days (millions)	7.5	17.8	32.4	46.9

3. Recreation Supply. Approximately 85 percent of the outdoor recreation activity at inventoried facilities in the Upper Ohio occurred at seven state parks and a Corps of Engineers' reservoir. The Corps' reservoir, Tom Jenkins, also serves the Burr Oak State Park and portions of Wayne National Forest. Total visitation at this recreation complex was 1.2 million in 1960. A total of 44,611 acres of inventoried land and water for recreation was recorded that same year, half of which fell within the boundaries of Wayne National Forest. Four state forests and nine fish and game areas round out the state-owned recreation resources in the subarea. Oglebay Park in Wheeling, the single inventoried major local area, covers over 1,000 acres and is considered by many the finest park of its kind in the country. The 1960 inventoried land and water acreages and visitation for Subarea E are indicated in the table on the following page.

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	24,198	19,363	1,050	44,611
Water	709	973	NA	1,682
Recreation Days (millions)	0.7	1.0	NA	1.7

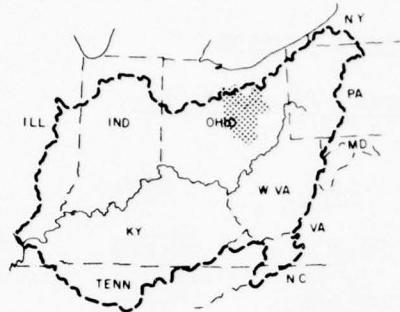
4. Recreation Needs. The Upper Ohio Subarea is experiencing a sizeable imbalance between outdoor recreation supply and demand. Comparison of the estimated demands with inventoried facilities in the subarea revealed an unmet need of 5.8 million recreation days in 1960. Projected needs for water-oriented recreation opportunities are indicated in the following table for planning target years:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	5.8	16.1	30.7	45.2

An analysis of inventoried potential outdoor recreation projects disclose that these facilities will fall short of meeting even the 1960 needs. The 1,550-acre Federal Creek Reservoir, tentatively considered for Athens County, Ohio, is estimated to be capable of accomodating approximately 600,000 visitors annually. Expansions and new development at three state parks, two state forests, and three fish and wildlife areas in Ohio can be expected to satisfy upwards of one-half million visitors annually. But the residents of the Upper Ohio will need to seek out recreation opportunities in adjoining subareas in the future unless the Land and Water Conservation Fund, the Appalachian Act, and other similar programs stimulate planning and construction of additional recreation sites with water-oriented leisure opportunities.

F. Muskingum



Muskingum Conservancy District are currently the major focal points for meeting demands for water-oriented leisure opportunities.

The Muskingum's 1,040,300 inhabitants (1960) represent about 5.5 percent of the basin's populace. The Canton SMSA falls within the subarea and accounts for less than a third of Muskingum's population. Although only one SMSA is within the subarea, 17 SMSA's within 125 miles of the subarea boundary offer a truer indication of population impact, recreationally speaking. Population projections reveal a continuation of the growth rate experienced in the past decade. By 1980 the population of Subarea F is projected to reach 1,326,070, or approximately a 30 percent increase in 20 years.

Manufacturing is the chief source of economic activity in the Muskingum Subarea, accounting for nearly 40 percent of the labor force in 1960. Agriculture, on the decline for some time, now accounts for less than six percent of the total subarea employment. No accurate measure of the recreation-tourism market's impact on the economy is available.

The Muskingum Subarea contains a network of primary and secondary roads which generally complement outdoor recreation development. The completion of I-70 (east-west) and I-77 (north-south) will further enhance recreational travel and access. A system of scenic roads and parkways would serve the recreation market by providing improved accessibility (especially in the Muskingum Conservancy District's reservoir region) and by satisfying much of the sightseeing demands.

2. Recreation Demand. Demand for water-oriented recreation opportunities in the Muskingum Subarea ranks fourth highest among the 19 subareas in the Ohio River Basin. The relatively high demand (12.4 million recreation days in 1960) in this subarea can be directly traced to the Muskingum's high effective population. Approximately 44 percent of the demand originates from 17 SMSA's within 125 miles of the subarea's boundary and eight percent from the Canton SMSA within the subarea. The remaining 48 percent can be traced to the

Muskingum non-SMSA populace. Estimated demands for target years are shown below:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u>			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	8,585	20,261	36,572	52,884
Boating	3,221	7,859	14,333	20,775
Water Skiing	510	1,571	3,136	4,697
Picnicking	4,956	9,912	16,404	22,847
Camping	976	3,240	6,754	10,248
Sightseeing	8,556	22,588	43,379	64,256
Nature Walks	3,746	6,968	10,751	14,497
Hiking	525	1,690	3,407	5,119
Total Activity	31,075	74,089	134,736	195,323
Total Recreation Days (millions)	12.4	29.6	53.9	78.1

3. Recreation Supply. The 14-reservoir recreation complex of the Muskingum Conservancy District offers 63 percent of the subarea's current land and water available for water-oriented recreation pursuits. These same reservoirs accounted for an annual visitation of 1,750,500 in 1960. The remaining resources available to satisfy existing demand are found in two county units of the Wayne National Forest (as reported in the Nationwide Plan), three state parks, three state forests, and 14 state fish and wildlife areas. The 1960 inventoried land and water acreages and visitation for Subarea F are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	18,588	33,590	101,613	153,791
Water	NA	1,472	15,740	17,212
Recreation Days (millions)	(0.1)	1.0	1.8	2.8

4. Recreation Needs. Comparisons of estimated water-oriented outdoor recreation demands (12.2 million) with existing use (2.8 million)

at inventoried facilities during 1960 reveal that the Muskingum Subarea is one of the areas of greatest need in the entire Ohio River Basin. The high imbalance between demand and supply (9.6 million need) is largely attributed to the high population concentrations within the subarea zone of influence. While existing facilities are substantial, development of additional facilities could attract visitors from the several SMSA's in the vicinity of the subarea. Projected needs for target years recorded in recreation days are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	9.6	26.8	51.1	75.3

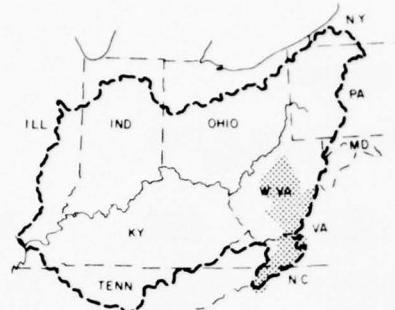
A substantial number of Corps of Engineers reservoirs have been considered for construction in this subarea. If constructed, these projects can be expected to meet a considerable portion of the unmet needs. These reservoir projects and estimated visitations are as follows:

<u>Reservoir Project</u>	<u>Seasonal Pool (acres)</u>	<u>Projected Visitation (recreation days)</u>
Frazeysburg	970	NA
Utica	1,900	300,000
Raccoon Creek	340	81,000
Conser Run	158	60,000
Hugle Run	235	1,800,000
Middle Branch	290	180,000
Muddy Fork	320	42,000
Still Fork	300	36,000
Lake Fork	425	NA

The Dillon Reservoir, a 1,330-acre impoundment constructed by the Corps of Engineers since 1960, accommodates over one-quarter million visitors annually. Additions planned for the Wayne National Forest, two state parks, two state forests, three state fish and wildlife areas, and two county reclamation areas (as reported in the Nationwide Plan) are expected to provide new water-oriented recreation opportunities in the subarea. The Chippewa and West Fork Duck Creek watershed projects, 24 and 195 acres, respectively, are projected to satisfy a total of 102,250 recreation days annually.

In spite of these ambitious programs by Federal, state, and local agencies, the development of inventoried potentials will fall short of meeting the estimated needs. Interaction between subareas could tend to equalize recreation needs, but demand exceeds supply in adjoining subareas also. The Muskingum Subarea will require further detailed study in order to solve this problem of unmet demands.

G. Kanawha-Little Kanawha



1. General. Third largest subarea in the Ohio River Basin, the Kanawha covers 13,953 square miles in portions of West Virginia, Virginia, and North Carolina. The subarea embraces the drainage basins of two major Ohio River tributaries, the Kanawha and Little Kanawha Rivers. The rugged topography characteristic of this part of the Appalachian Plateau complements the bountiful natural resources of the subarea.

Subarea G is not highly urbanized as is common in the subareas in northern portions of the Ohio River Basin. With one exception (Sub-area J) the Kanawha has the lowest percent of urbanized population in the basin, less than 31 percent in 1960. The subarea's population, about 900,000 in the 1960 base year, is projected to increase 18 percent by 1980. Charleston, West Virginia, located in the northwestern corner of the subarea, is the lone SMSA and accounts for over 90 percent of Kanawha's urban population.

Manufacturing (centered in the Charleston SMSA) constitutes the primary source of economic activity and employment. During 1960 more than 24 percent of the labor force was engaged in the manufacturing industries. Mining, historically an important sector of the subarea's economy, has declined over 50 percent since 1940 as a source of employment. Completion of several proposed reservoirs, along with accelerated public work's program of recreational character in depressed areas, could be expected to contribute to the economic welfare of the Kanawha Subarea in future years.

Problems of adequate access to the subarea in general and individual resources in particular have hampered outdoor recreation development in the Kanawha. Highway construction as proposed under the Appalachia program can be expected to alleviate this problem to some degree. A system of scenic roads and parkways warrants detailed investigation as a possible solution to this access problem as well as for opening new opportunities for the tourism industry to assist in reducing the economic depression of the region.

2. Recreation Demand. The demand for water-oriented outdoor recreation opportunities in the Kanawha totaled 7.8 million recreation days in 1960. Estimates of demands are closely correlated with the total effective population of the subarea. In the Kanawha Subarea, more than in most of the Ohio Basin units, a low effective population exists from SMSA's within the subarea and adjoining subareas and a relatively high effective population is recorded for non-SMSA portions of the Kanawha. Estimated demands in the target years, expressed in both

activity days and recreation days, are indicated in the following tabulation:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)		
	<u>1960</u>	<u>1980</u>	<u>2000</u>
Swimming	5,380	12,697	22,919
Boating	2,019	4,926	8,984
Water Skiing	320	986	1,968
Picnicking	3,106	6,212	10,281
Camping	612	2,032	4,235
Sightseeing	5,362	14,156	27,185
Nature Walks	2,347	4,365	6,736
Hiking	329	1,059	2,135
Total Activity Days	19,475	46,433	84,443
Total Recreation Days (millions)	7.8	18.6	33.8
			49.0

3. Recreation Supply. A wealth of natural resources capable of supporting outdoor recreation facilities ranks the Kanawha second in the Ohio River Basin in terms of total land and water area available for meeting the leisure demand of the public. Over 680,000 acres of recreational lands have been inventoried for the purpose of this study. Nearly 90 percent of this falls within the boundaries of Federal resource managing agencies; namely, the Monongahela, Cherokee, Jefferson, and Pisgah National Forests, Sutton and Bluestone Corps of Engineers Reservoirs, and the Blue Ridge Parkway administered by the National Park Service. The two Corps reservoirs accommodated 1,386,000 visitors during 1963 and amply give evidence of the potential use of artificial impoundments in the Kanawha Subarea. In addition to Federal resource areas, the states within the subarea provide outdoor recreation opportunities in a variety of settings. In total, thirteen state parks, four state forests, three state fish and game areas, and two major local areas are found in the 30-county tri-state subarea. The 1960 inventoried visitation and land and water area for Subarea G are as follows:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	610,494	69,602	1,437	681,533
Water	4,971	278	50	5,299
Recreation Days (millions)	3.6	1.1	NA	4.7

4. Recreation Needs. Comparisons of outdoor recreation demands (7.8 million recreation days) with supply (4.7 million) indicated that approximately 60 percent of estimated demand for water-oriented recreation opportunities in the Kanawha was being met at inventoried facilities in 1960. The unmet need is among the lowest in the Ohio River Basin. Analysis of the inventory of potential recreation areas suggest that the 1960 needs and a portion of projected needs can be met if those potentials become a reality. Six proposed Corps of Engineers reservoirs (Burnsville, West Fork, Leading Creek, Summersville, Birch, and Moores Ferry) are capable of providing in excess of 6,200 additional acres of water for recreation purposes. Four of these sites (excluding Moores Ferry and Birch) are projected to accommodate a total annual visitation of 1,150,000. In addition, expansion or new development at nine state parks, five state forests, and five fish and game areas can be expected to help alleviate future needs within the Kanawha Subarea.

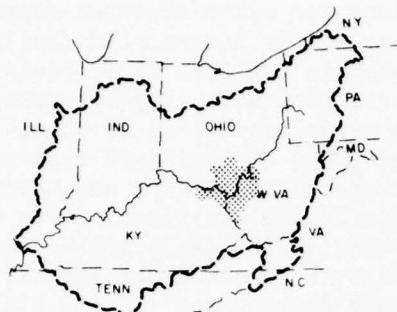
The estimated outdoor recreation needs for target years in the Kanawha are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	3.1	13.9	29.1	44.3

Due to the abundance of recreational resources in this region, an accelerated program of development should be considered in the subarea to aid in alleviating some of the need from nearby subareas and from the population centers to the east where resources are relatively lacking. Any development of recreation facilities, however, would require substantial construction of primary and secondary roads to connect the population centers with the resources. The Appalachian development highway program will aid significantly in this regard.

H. Ohio-Huntington



1. General. The Huntington Subarea encompasses a 14-county area in the States of Ohio, Kentucky, and West Virginia. The subarea's topography generally complements the development of natural resources for recreation purposes. The presence of 195,569 acres of public recreation lands and waters in the 5,916 square mile subarea is ample evidence of the attractiveness of the subarea's physical setting for recreation.

Almost half of the 531,700 inhabitants of Subarea H reside within the Huntington-Ashland SMSA. In spite of this, the total level of urbanization is considerably below that of the Ohio River Basin as a whole. According to the Projective Economic Study, a continued out-migration is expected to slow the rate of population growth during the next two decades. Projected population for 1980 is 599,000 or roughly a 13 percent increase over the 20-year period.

As is true in most of the Ohio River Basin's subareas, agriculture in the Huntington Subarea continues to decline as a source of employment while manufacturing experiences steady growth. The recreation-tourism industry can be expected to contribute a greater share to the total subarea economic activity if provisions are made to meet projected demands for water-oriented outdoor recreation opportunities.

Difficulty of access, due to rugged topographic conditions in portions of the subarea, creates a barrier to extensive recreation development in the Huntington Subarea. Travel patterns tend to follow the course of the Ohio River. Interstate 77 will skirt the subarea to the east in its north-south course. A wealth of potential scenic resources is available within the subarea, opening the door to a system of scenic roads and parkways on secondary roads.

2. Recreation Demand. The estimated 1960 water-oriented outdoor recreation demand (4.3 million recreation days) ranks the Huntington Subarea sixteenth among the 19 subareas in the Ohio River Basin. This relatively low demand can be traced to the low effective population of the subarea (503,200). Approximately 20 percent of the subarea's estimated demand originated within the Huntington-Ashland SMSA. An additional 25 percent came from 12 SMSA's within 125 miles of the subarea's limits. Demand is projected to increase over two times by 1980 and reach 27.0 million recreation days by the year 2020. Outdoor recreation demands in the Huntington Subarea for target years are shown in the table on the following page.

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	2,964	6,995	12,627	18,258
Boating	1,112	2,713	4,948	7,172
Water Skiing	176	542	1,082	1,621
Picnicking	1,711	3,422	5,663	7,888
Camping	337	1,119	2,332	3,538
Sightseeing	2,954	7,798	14,977	22,184
Nature Walks	1,293	2,405	3,711	5,004
Hiking	181	583	1,175	1,765
Total Activity Days	10,728	25,577	46,515	67,430
Total Recreation Days (millions)	4.3	10.2	18.6	27.0

3. Recreation Supply. Approximately 1.4 million visits, or 85 percent of the total recreation use of the Huntington Subarea, occurs at seven state parks. The balance of visitation takes place at units of Wayne National Forest, eight state forests, seven fish and wildlife areas, and a Corps of Engineers lock and dam. Public land and water available for recreation, 195,000 acres (two-thirds of which is under state management), ranks this subarea eighth in the Ohio River Basin. The 1960 inventoried visitation and land and water acreages are indicated on the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	61,023	134,235	311	195,569
Water	10,466	1,675	NA	12,121
Recreation Days (millions)	0.1	1.6	NA	1.7

4. Recreation Needs. The Huntington Subarea's water-oriented recreation need (2.6 million recreation days in 1960) is a product of the imbalance between demand (4.3 million) and supply (1.7 million) at inventoried facilities. Projected needs for the subarea for target years are indicated in the table shown on the following page.

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	2.6	8.5	16.9	25.3

Tabulation of the inventory of potential recreation areas within the Huntington Subarea indicates a total of 128,499 acres, 4,505 of which are potential recreational waters. These additions are located in three units of the Wayne National Forest, five state parks, seven state forests, five fish and game areas, and two Corps of Engineers reservoirs. The reservoirs, East Lynn and Beech Fork, will accommodate an estimated 400,000 persons according to estimated capacity programmed by the Corps. These potential areas can be expected to satisfy the unmet demand identified for the base year 1960. However, additional planning is required in view of projected outdoor recreation needs identified in this study.

I. Scioto



River and its tributaries cut deep valleys in the subarea's midsection. The lower reaches of the Scioto below Columbus are characterized by broad flood plains with rich farmlands. Although no natural lakes are found in the subarea, artificial impoundments are prevalent. These serve multiple purposes, including outdoor recreation.

The 1960 population of the Scioto Subarea was 1,113,400 persons. Population density averages 179 persons per square mile with greatest population concentrations occurring in the subarea's lone SMSA, Columbus. Population projections for this 13-county area reveal that 1,561,300 persons would reside in the Scioto by 1980, a 40 percent growth in 20 years.

Early development of the subarea was primarily due to the agricultural potential of the Scioto River drainage basin. Abundant natural resources also made industrial growth possible.

Today, declining employment in agriculture is being offset by substantial increases in manufacturing. The excellent transportation system of the Scioto not only complements movement of raw materials and manufactured goods, but also opens the subarea's outdoor recreation resources to the large metropolitan centers of the Ohio River Basin.

The Scioto Subarea is accessible from large metropolitan centers within the midwest by air, railroad, and a well-developed network of Federal and state highways. Columbus is the hub of this network which serves 18 SMSA's within 125 miles of the subarea. With intersubarea access problems largely removed as a barrier to recreation travel, concentrated efforts can be directed toward improving access to individual resource sites. A system of scenic roads and parkways could contribute toward this end as well as provide a recreation experience in themselves.

2. Recreation Demand. The estimated water-oriented outdoor recreation demand (8.2 million recreation days) for the base year 1960 was eighth highest among the 19 basin subareas. This demand for water-oriented recreation opportunities can be largely traced to the impact

of metropolitan centers in or near the subarea. The Columbus SMSA's effective population accounted for approximately 35 percent of the total demand. About 45 percent originated within the non-SMSA portion of the subarea. The remaining 20 percent of the demand originated from 18 SMSA's adjoining the Scioto Subarea. Outdoor recreation demands expressed in both activity days and recreation days, are indicated in the following tabulation:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	5,660	13,358	24,112	34,866
Boating	2,124	5,182	9,452	13,700
Water Skiing	336	1,035	2,066	3,094
Picnicking	3,267	6,534	10,814	15,061
Camping	644	2,138	4,456	6,762
Sightseeing	5,640	14,890	28,595	42,356
Nature Walks	2,470	4,594	7,089	9,559
Hiking	<u>346</u>	<u>1,114</u>	<u>2,245</u>	<u>3,374</u>
Total Activity Days	20,487	48,845	88,829	128,772
Total Recreation Days (millions)	8.2	19.5	35.5	51.5

3. Recreation Supply. State outdoor recreation facilities dominate existing programs to meet leisure demands in the Scioto Subarea. Eight state parks, three state forests, and eight state fish and wildlife areas scattered throughout the subarea accounted for 92 percent of the recreation use and 65 percent of land and water acreages available at inventoried facilities in the Scioto in 1960. Federal facilities for outdoor recreation include a 1300-acre Corps of Engineers' reservoir (Delaware), a national monument (Mound City Group), and units of the Wayne National Forest. The total 1960 inventoried visitation and land and water acreages for the Scioto Subarea are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	26,999	48,719	NA	75,718
Water	1,302	6,177	NA	7,479
Recreation Days (millions)	0.4	4.3	NA	4.7

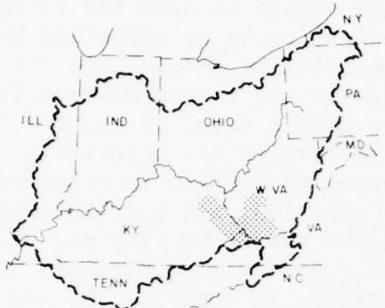
4. Recreation Needs. Comparisons of outdoor recreation demands (8.2 million) with use (4.7 million) at inventoried facilities indicated that approximately 60 percent of the Scioto demand in 1960 was being met. The unmet demand (3.5 million recreation days) could be satisfied by the construction of those potential sites identified by Federal and state agencies. The inventory of potential sites in the Scioto Subarea includes nine Corps of Engineers' reservoirs with a total of about 6,000 acres impounded. Although most of these reservoirs are relatively small in size (380 to 1,385 acres), projected visitation is expected to exceed 6.0 million at the nine sites. In addition, new construction and expansion of four state parks, a state forest, four fish and wildlife areas, and portions of Wayne National Forest will contribute to meeting the estimated needs. These potentials, if constructed, can be expected to satisfy current needs (3.5 million recreation days), but will fall short of meeting needs identified for the first target year (1980). In this 20 year period, outdoor recreation needs are estimated to more than quadruple. Estimated needs for all target years in the Scioto are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	3.5	14.8	30.8	46.8

Although the potential areas, if constructed, will satisfy much of the recreation needs through 1980, further planning and development of the Scioto's outdoor recreation resources is required if the demands for future leisure opportunities are to be adequately met.

J. Guyandot-Big Sandy-Little Sandy



labor force, but the economic role of this activity is expected to diminish. No SMSA's fall within the confines of the subarea's boundary. According to the Projective Economic Study, the Guyandot will experience a population decline of approximately 64,000 by 1980. Out-migration of the younger age groups will continue to drain the subarea's populace.

Although the existing road system is somewhat deficient, access to the recreation resources of this subarea would be greatly improved under the Appalachian development highway program.

2. Recreation Demand. The estimated water-oriented outdoor recreation demand (4.8 million recreation days in 1960) is among the lowest in the entire Ohio River Basin. This relatively small demand is a direct result of the absence of large metropolitan centers within close proximity to the Guyandot's existing and potential resources. Approximately 80 percent of this demand originates from the subarea's 463,700 inhabitants. The remaining 20 percent originates from 13 SMSA's within 125 miles of the Guyandot's borders. Estimated outdoor recreation demands focused on Subarea J are indicated in the following table:

OUTDOOR RECREATION DEMANDS

Activity	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	3,302	7,793	14,066	20,340
Boating	1,239	3,023	5,514	7,992
Water Skiing	196	604	1,205	1,805
Picnicking	1,906	3,812	6,309	8,787
Camping	376	1,248	2,602	3,948
Sightseeing	3,291	8,688	16,685	24,715
Nature Walks	1,441	2,680	4,136	5,577
Hiking	202	650	<u>1,311</u>	<u>1,970</u>
Total Activity Days	11,953	28,498	51,828	75,134
Total Recreation Days (millions)	4.8	11.4	20.7	30.0

3. Recreation Supply. The Guyandot exhibits a medial outdoor recreation picture in terms of providing water-oriented leisure opportunities in relation to the Ohio River Basin as a whole. Total visitation to Guyandot recreation areas (38,087 acres of land and water) in 1960 was 0.4 million. Nearly half of this use occurred at the Corps of Engineers Dewey Reservoir. The remaining visitation took place at two state parks, three state forests, the Breaks Interstate Park, and parcels of Jefferson National Forest.

The 1960 inventoried visitation and land and water acreages are indicated on the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	13,116	24,971	NA	38,087
Water	1,100	99	NA	1,199
Recreation Days (millions)	0.2	0.2	NA	0.4

4. Recreation Needs. Comparison of outdoor recreation demands (4.8 million recreation days) with supply (0.4 million) at inventoried facilities in 1960 indicated only eight percent of the demand was being met. However, the resulting recreation need (4.4 million) is relatively small in comparison with total basin needs (105.4 million) or even average subarea needs (5.5 million). The Guyandot recreation needs projected to target years reveal the following figures:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	4.4	11.0	20.3	29.6

The Guyandot's current recreation needs, and those in the next two decades, are not as serious a deficiency as they might at first appear. Since 1960, expanded facilities and new areas within the subarea have accounted for an additional 1,702,500 visitation (1963). Potential recreation areas identified in this study can be expected to not only satisfy the unmet need in 1960, but also satisfy a goodly portion of that need projected for 1980. Principal potentials aimed at meeting this goal are eight Corps of Engineers' reservoirs (Fishtrap, Grayson, Paintsville, Yatesville, John W. Flannagan, North Fork Pound River, Haysi, and Justice). Total estimated visitation at these sites is expected to exceed 1,845,000 annually. In addition, expansion at two

state parks, one state forest, and two fish and game areas can be expected to satisfy a portion of future needs. Satisfaction of needs beyond the 1980 target year will require additional study.

K. Ohio-Cincinnati



natural resources capable of supporting a diversified but somewhat limited, recreation development.

Approximately 1,309,600 persons resided in Subarea K during 1960. The Cincinnati SMSA accounted for more than 80 percent of the subarea's population. Although one of the smallest basin subareas in size, the Cincinnati Subarea ranks fifth largest in terms of population. The Projective Economic Study indicated this population will reach about 1.5 million by 1980 and 1.9 million by the year 2000, or 15 and 46 percent increases, respectively.

Primarily an urbanized subarea, the chief economic activity centers around the manufacturing and service industries. In 1960, manufacturing accounted for roughly one-third of the total employment. Services employed 88,800 and accounted for an additional 18 percent while agriculture, rapidly declining as a source of employment, totaled less than four percent.

Travel patterns in the subarea have historically tended to follow major river basin valleys. Highway 50, paralleling the mainstem of the Ohio River, is a principal example of this trend. In recent years, an ambitious interstate highway construction program has made inroads into opening up large portions of the subarea to travelers from major metropolitan centers. Interstate 75 offers a north-south passage joining together Dayton, Cincinnati, and Lexington. Traversing the basin from northeast to southwest, Interstate 71 serves the subarea and affords access from Cleveland to Louisville. The subarea's northwestern recreation market is served by I-74 from Indianapolis.

2. Recreation Demand. The estimated demand for water-oriented outdoor recreation opportunities in the Cincinnati Subarea totaled 6.6 million recreation days in 1960. This demand is projected to reach 15.7 million by 1980 and exceed 28 million by the turn of the century. Approximately 50 percent of the estimated demand for recreation in the subarea originates within the Cincinnati SMSA. The table on the following page indicates estimated outdoor recreation demands in Subarea K.

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)		
	<u>1960</u>	<u>1980</u>	<u>2000</u>
Swimming	4,543	10,721	19,353
Boating	1,704	4,158	7,583
Water Skiing	270	832	1,660
Picnicking	2,622	5,244	8,679
Camping	517	1,716	3,578
Sightseeing	4,528	11,954	22,957
Nature Walks	1,982	3,686	5,688
Hiking	<u>278</u>	<u>895</u>	<u>1,804</u>
Total Activity Days	16,444	39,206	71,302
Total Recreation Days (millions)	6.6	15.7	28.5
			41.3

3. Recreation Supply. Two recreation developments located within the Cincinnati SMSA (a Corps of Engineers reservoir and a county park) account for approximately 85 percent of the inventoried recreation use in the subarea. The West Fork Mill Creek Reservoir and Winton Woods County Park attract over 1.5 million visitors annually to the 180-acre recreation pool and recreation facility developments. Four state parks (one each in Indiana and Kentucky, and two in Ohio), one state forest, and four state fish and wildlife areas offer the balance of inventoried outdoor recreation opportunities in the subarea. The 1960 land and water acreages and visitation for Subarea K are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	1,280	24,437	2,012	27,729
Water	180	758	183	1,121
Recreation Days (millions)	1.6		1.4	3.5

4. Recreation Needs. Comparisons of recreation demand (6.6 million recreation days) with existing use (3.5 million) in 1960 at inventoried facilities in the Cincinnati Subarea indicated that just over 50 percent of the total estimated demand was being met. The relative scarcity of water-oriented recreation opportunities within the subarea is the primary

cause for this imbalance between demands and needs. (A total of 1,121 acres of recreational waters were inventoried for 1960.) It is reasonable to assume that a portion of the 3.1 million need can be met in neighboring subareas (L and M) where reservoir-type recreation potential is more prevalent. Programed expansion of three state parks in the sub-area can be expected to alleviate some of the remaining base year needs. Development of the proposed White Oak Reservoir in Brown County and the East Fork Reservoir in Clermont County, Ohio, would be capable of accommodating over $2\frac{1}{2}$ million visitors annually.

Estimated projected outdoor recreation needs for target years are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	3.1	12.2	25.0	37.8

In order to meet present and projected needs for water-oriented recreation opportunities in the Cincinnati Subarea, the following steps could help satisfy the need: (1) construction of additional impoundments beyond those now programed, (2) construction of small watershed projects aimed at meeting local needs, and (3) exploration of the potential for providing varied water-oriented recreation on the mainstem of the Ohio River.

L. Little Miami-Miami



for an accelerated outdoor recreation program; namely, developable resources and a high density population (234 persons per square mile).

The Miami is one of the largest basin subareas in terms of population. The 1960 census of population recorded a total of 1,419,000, ranking the subarea third highest in the basin. Three SMSA's (Dayton, Springfield, and Hamilton-Middletown) form the principal population concentrations in this highly urbanized subarea. Approximately 70 percent of the population resides within these SMSA's. According to the Projective Economic Study, the Miami Subarea's population is projected to reach 1.8 million, or about a 30 percent increase, in the next two decades.

One of the most urbanized subarea's in the entire Ohio River Basin, Subarea L employs the greater portion of its labor force in manufacturing (38%) and services (18%). Agriculture, steadily declining in terms of employment, accounts for less than six percent of the labor force.

The Miami Subarea's transportation network provides ready access to recreation complexes from major metropolitan regions within and outside the subarea. Interstate 75 bisects the subarea and runs in a north-south direction through Toledo, Dayton, and Cincinnati. Interstate 70, major east-west route linking Indianapolis and Columbus, passes through the heart of the Miami Subarea near both Dayton and Springfield. In addition, Interstate 71 crosses the southeastern corner of the subarea and serves Cincinnati-Columbus travelers. Primary and secondary routes generally complement the interstate system opening much of the subarea's outdoor resources to the recreator.

2. Recreation Demand. The estimated demand for water-oriented recreation opportunities in the Miami Subarea (11.2 million recreation days in 1960) exceeded all other subareas in the Ohio River Basin except the Wabash, White, Pittsburgh, and Muskingum. The high effective population centered in and near the subarea was the primary cause for this high demand. Three subarea SMSA's and 14 adjoining SMSA's accounted

for approximately 70 percent of the population focused upon the Miami Subarea in the calculation of demand estimates. Subarea L is the center of a belt of high demand running across the northern reaches of the basin from the Allegheny to the Wabash. Total demand in this belt is approximately 75 million (1960) of which 15 percent is focused on the Miami. Estimated demand is as follows:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	7,754	18,299	33,032	47,765
Boating	2,902	7,098	12,945	18,763
Water Skiing	461	1,420	2,835	4,246
Picnicking	4,476	8,952	14,816	20,634
Camping	882	2,928	6,103	9,261
Sightseeing	7,727	20,399	39,176	58,030
Nature Walks	3,383	6,292	9,709	13,092
Hiking	474	1,526	3,076	4,622
Total Activity Days	28,066	66,914	121,692	176,413
Total Recreation Days (millions)	11.2	26.8	48.7	70.6

3. Recreation Supply. Although seven state parks, six state fish and game areas, and two major local areas are included in the inventoried facilities, the Miami's total land and water recreation area was only 21,046 acres in 1960. This ranked the subarea 16th in the basin in terms of total acreage set aside for water-oriented recreation pursuits. No Federal recreation areas were recorded for Subarea L for the base year. The metropolitan populace in and near the subarea has generated a demand for outdoor recreation which has resulted in a visitation of nearly 5,000,000 recreation days to existing facilities in 1960, third highest in the basin. The 1960 inventoried land and water acreages and visitation for Subarea L are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	NA	19,776	1,270	21,046
Water	NA	9,343	180	9,523
Recreation Days (millions)	NA	4.5	0.5	5.0

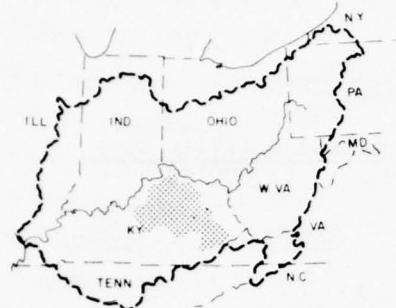
4. Recreation Needs. Water-oriented outdoor recreation needs for the Miami Subarea are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	6.2	21.8	43.7	65.6

The comparison of estimated recreation demand (11.2 million) with existing use (5.0 million) at inventoried facilities in 1960 indicated that about 45 percent of the total estimated demand was being met. The resulting needs (6.2 million) for the base year can be, in part, attributed to the relative scarcity of both land and water area within the subarea for recreation pursuits. Three planned Corps of Engineers reservoirs (Brookville, Buck Creek, and Caesar's Creek) can be expected to absorb in excess of 2,000,000 visitors. New developments and expansions at six state parks, seven state fish and wildlife areas, and several major local areas can be expected to meet the balance of the 1960 needs. But programmed developments are inadequate to meet projected future needs. The need for outdoor recreation water-oriented opportunities is expected to increase more than three times by 1980 and seven times by 2000 in the Miami Subarea. Subarea L will be unable, to any great extent, to look to adjoining subareas to meet projected needs, for these areas also will experience high recreational needs.

M. Licking-Kentucky-Salt



the mainstem of the Ohio River. An abundance of natural resources combine with numerous potential sites for manmade impoundments to offer the elements necessary to meet existing and future needs for water-oriented recreation.

The Licking's 722,700 inhabitants (1960) represent less than four percent of the total Ohio River Basin populace. Largely a rural subarea, only one-third of the population resides in an urban setting. A large portion of this urban population is centered in the subarea's lone SMSA, Lexington. According to the Projective Economic Study, Subarea M will experience a population growth somewhat slower than the basin as a whole.

Although steadily declining as a source of employment, agriculture has retained itself as a dominant factor in the Licking Subarea's economy. Over 20 percent of the subarea's labor force was engaged in farming during 1960. Manufacturing has shown steady growth and is expected to replace agriculture as the chief source of employment by 1980. The recreation tourism market can be expected to grow substantially as proposed recreational developments are constructed. Tourism now ranks seventh in the State of Kentucky's economy.

Lexington serves as the core of a system of interstate routes which open a large portion of the Licking Subarea to tourists from major metropolitan centers. Interstate 64 traverses the subarea from east to west and is supplemented by the Mountain Parkway. Interstate 75 serves north-south movement of travelers to and through the subarea. Development of secondary roads of outstanding scenic value would enhance access to new recreation opportunities in the Licking Subarea.

2. Recreation Demand. The estimated water-oriented outdoor recreation demand (8.6 million in 1960) for the Licking Subarea represented 5.25 percent of the total basin demand. The Licking Subarea ranked eighth among the 19 subareas in total demand for the 1960 base year. Approximately 40 percent of the subarea's demand originated in the Lexington SMSA and the 13 SMSA's within 125 miles of the subarea.

The estimated outdoor recreation demands for the Licking Subarea are indicated in the following table:

OUTDOOR RECREATION DEMANDS

Activity	<u>Annual Activity Days</u> (1,000's)			
	1960	1980	2000	2020
Swimming	5,968	14,084	25,424	36,763
Boating	2,239	5,463	9,964	14,442
Water Skiing	355	1,093	2,183	3,270
Picnicking	3,445	6,890	11,403	15,881
Camping	679	2,254	4,699	7,130
Sightseeing	5,948	15,703	30,156	44,669
Nature Walks	2,604	4,843	7,473	10,077
Hiking	365	1,175	2,369	3,559
Total Activity Days	21,603	51,505	93,671	135,791
Total Recreation Days (millions)	8.6	20.6	37.5	54.3

3. Recreation Supply. Approximately 12 percent of the total inventoried land and water recreation area in the Ohio River Basin lies within the Licking Subarea. Over 460,000 acres of the subarea's available recreation acreage falls within the Cumberland National Forest. The Corps of Engineers Buckhorn Reservoir, covering 1,250 acres, is the only other Federal recreation site in the subarea. Two state parks, a state forest, and 11 state fish and game areas form the balance of areas set aside to satisfy outdoor recreational needs. The 1960 visitation to inventoried facilities totaled 625,500. The 1960 acreages and visitation for the Licking Subarea are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	235,002	15,666	NA	250,668
Water	6,866	1,309	NA	8,175
Recreation Days (millions)	0.3	0.3	NA	0.6

4. Recreation Needs. Comparisons of estimated outdoor recreation demands for 1960 (8.6 million) with visitation (0.6 million) to inventoried facilities in the Licking Subarea indicated that only seven per-

cent of the demand was being met. The resulting need (8.0 million recreation days) in the subarea ranked among the highest in the entire basin.

Water-oriented outdoor recreation needs, expressed in annual recreation days for target years, are as follow:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	8.0	20.0	36.9	53.7

The estimated needs can be attributed largely to the lack of sufficient water-oriented recreation facilities to meet the estimated demand. The U.S. Army Corps of Engineers has programmed a rather ambitious schedule of reservoir project construction to meet this and other water needs. Eight potential Corps reservoirs (Big Half Mountain, Booneville, Cave Run, Carr Fork, Eagle Creek, Falmouth, Red River, and Taylorsville) would provide an additional 28,000 acres of water for outdoor recreation pursuits. Total annual estimated visitation to these Corps of Engineers impoundments (excluding Falmouth and Taylorsville, for which estimates are not available) is expected to exceed three million. Expansion and new development at four state parks, two state fish and wildlife areas, and a major local area are expected to provide additional water-oriented recreational opportunities. Three proposed watershed projects by the Soil Conservation Service, totaling 313 acres of water, form the balance of inventoried programmed sites in the Licking Subarea, but all agencies are expected to continue to expand their programs in an effort to alleviate more of the subarea's recreation needs.

N. Ohio-Louisville



five in Indiana and six in Kentucky, are the home of 852,600 people (1960), 85 percent of which reside in urban areas. Louisville, lone subarea SMSA, lies within the heart of Subarea N. Total subarea population is expected to increase almost 35 percent between 1960 and 1980 largely due to the dynamic growth of the Louisville metropolitan area.

A diversified manufacturing industry, centered in the Louisville SMSA, accounts for the major economic activity in Subarea N. Agricultural employment is steadily declining while services employment is expected to increase over 50 percent by 1980.

When fully completed, Interstate 64 (east-west route) and Interstate 65 (north-south route) are expected to increase recreation travel in the subarea by channeling traffic to the region from major metropolitan areas. Chicago, St. Louis, Indianapolis, and Cincinnati all will be within one day's driving distance or less. Substandard secondary roads adjacent to the Ohio River have been a detriment to travel and tourist attraction. However, many of these roads have been proposed for scenic roads and parkways in the scenic roads and parkways study of both Indiana and Kentucky. The proposed Ohio River National Parkway would funnel tourists into the Ohio River valley as well as provide sightseeing and other outdoor recreation opportunities along the Ohio River.

2. Recreation Demand. The estimated demand for water-oriented outdoor recreation in the Louisville Subarea was the lowest in the entire Ohio River Basin in 1960. Less than three percent of the total basin demand, or 3.8 million recreation days, was accounted for by the Louisville Subarea in that year. The relatively low demand is directly a result of the low calculated effective population. Although the Louisville SMSA contains an actual population of 725,000 people, its population affecting Subarea N is somewhat lower due to the demand methodology which considers that much of Louisville's recreation demand will flow into neighboring subareas.

Outdoor recreation demands in the subarea, although low, are expected to more than double by 1980 and increase in excess of six times by the year 2020. Projected demands for target years follow:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	2,596	6,126	11,059	15,991
Boating	974	2,376	4,334	6,282
Water Skiing	154	474	974	1,418
Picnicking	1,498	2,996	4,958	6,906
Camping	295	979	2,041	3,098
Sightseeing	2,587	6,830	13,116	19,428
Nature Walks	1,132	2,106	3,249	4,381
Hiking	159	512	1,032	1,550
Total Activity Days	9,395	22,399	40,736	59,054
Total Recreation Days (millions)	3.8	9.0	16.3	23.6

3. Recreation Supply. Federally owned recreation land within Subarea N is limited to approximately 8,000 acres of scattered parcels of Hoosier National Forest in Crawford County, Indiana, little of which has been developed for recreation purposes. Compared to neighboring subareas, state-owned recreation lands are also rather limited. Total visitation to three state parks, one state forest, and one state fish and game area (covering 7,200 acres of state lands) was less than 600,000 in 1960. Total inventoried acres of recreation water in Subarea N (183 acres in 1960) was the lowest of the 19 subareas in the Ohio River Basin. The inventory did not include the Ohio River. The 1960 inventoried land and water acreages and visitation for Subarea N are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	8,420	7,161	NA	15,581
Water	15	168	NA	183
Recreation Days (millions)	0.1	0.5	NA	0.6

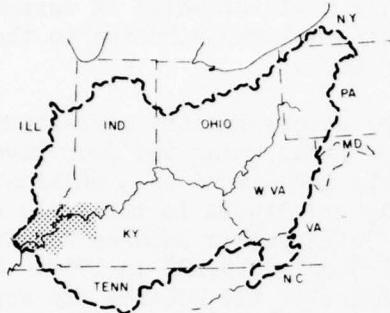
4. Recreation Needs. Comparisons of recreation demand (3.8 million) with existing use (0.6 million) in 1960 indicated that only 15 percent of the total estimated demand was being met at inventoried facilities in the Louisville Subarea. This imbalance between supply and demands, totaling 3.2 million recreation days, could be primarily attributed to the lack of water for recreation. Total inventoried water area in 1960 was 183 acres (exclusive of the Ohio River). Potential recreation areas planned or completed since 1960 are few and will fall short of meeting 1960 need. Rough River Reservoir, located in both Subarea N and P, was completed in late 1960. The 4,375 acre impoundment attracted approximately 695,000 visitors in 1964. Three programed watershed projects by the Soil Conservation Service on the Muddy Fork in Clarke County, will add 76 additional acres of water for recreation pursuits. To date, no other planned expansion exists in Subarea N to meet the balance of the 1960 needs and the following projected needs in the target years:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	3.2	8.4	15.7	23.0

Alternative courses of action which could be undertaken to meet present and projected needs in the Louisville Subarea include: (1) construction of additional impoundments beyond those now contemplated in the subarea, (2) transference of the demands to nearby subareas, primarily Subareas P (Green) and S (Cumberland), through construction of additional facilities, and (3) optimum development of the Ohio River potential.

O. Lower Ohio-Evansville



1. General. Subarea O embraces a 23 county tri-state area adjacent to the lower reaches of the Ohio River. Bisecting the subarea in half (11 counties in Kentucky, 7 in Illinois, and 5 in Indiana), the meandering Ohio River is probably the subarea's most valued scenic and outdoor recreation resource. A variety of landscape, from rugged hills and deep valleys to broad bottomlands, is contained within the subarea's 7,478 square miles offering numerous opportunities for diversified recreation developments.

The Lower Ohio's climate generally complements outdoor pursuits, both in daytime temperatures and in length of recreation season.

The Lower Ohio is one of the smallest basin subareas in terms of population. The 1960 census of population recorded a total of 559,200 inhabitants, over half of which reside in rural areas. The highest population concentration is centered in the subarea's lone SMSA, Evansville, Indiana. Located in counties in both Indiana and Kentucky, the Evansville SMSA has a population of 199,300 (1960), or approximately 36 percent of the total subarea populace. According to the Projective Economic Study, the subarea's population is expected to increase 25 percent by 1980 and over 70 percent by 2010.

Agriculture was the chief source of employment several decades ago, but this industry has followed the national trend and today makes up less than 10 percent of the Lower Ohio's labor force. Manufacturing, centered in the Evansville SMSA, has grown to where it included 26 percent of the labor force in 1960. The Projective Economic Study indicates rates of growth in employment by 1980 for the following industries:

Agriculture, 50 percent decline; Manufacturing, 26 percent increase; Services, 57 percent increase, and Mining, 95 percent increase. (Indiana University's study, Tourist Recreation Resources in Southern Indiana, indicates that the projected mining employment increases are contrary to historic trends. Coal production reached its peak in 1918 and during World War II, but reached a new low during the middle 1950's. Demand for coal for electric generating plants will undoubtedly increase, but any large scale deep-shaft mining is questionable until surface coal supplies become depleted.)

Subarea O is laced with highways having excellent potential for development as scenic roads and parkways, but not conducive to high speed, high volume travel. Completion of Interstate 64 will improve movement of east-west travel (between St. Louis and Louisville) along the northern borders of the subarea. A major transportation need, especially in terms of recreation-tourism travel, is a dual-lane roadway traversing the subarea

from north to south, making the subarea more readily accessible from major population centers to the north. Creation of an Ohio River National Parkway along the Ohio River, a bill for which is currently pending in Congress, would make a substantial contribution to the total recreation travel picture of the Lower Ohio.

2. Recreation Demand. Demand for water-oriented recreation opportunities in the Lower Ohio Subarea ranks among the four lowest in the Ohio River Basin. The relatively low demand (4.3 million in 1960) assigned to the subarea can be directly attributed to the small effective population. Only the Evansville SMSA falls within subarea boundaries. Non-SMSA population of Subarea O totaled only 359,000 in 1960. Six metropolitan centers fell within 125 miles of the subarea and were included in the calculations of effective population and recreation demands. Estimated demands for target years follow:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	2,977	7,026	12,682	18,338
Boating	1,117	2,725	4,971	7,205
Water Skiing	177	545	1,088	1,630
Picnicking	1,719	3,438	5,690	7,924
Camping	339	1,125	2,346	3,560
Sightseeing	2,967	7,833	15,043	22,282
Nature Walks	1,299	2,416	3,728	5,027
Hiking	182	586	1,181	1,774
Total Activity Days	10,777	25,694	46,729	67,740
Total Recreation Days	4.3	10.3	18.7	27.1

3. Recreation Supply. The Shawnee and Hoosier National Forests in Illinois and Indiana, respectively, offer approximately 75 percent of the total 220,816 acres of inventoried recreational lands and water in Subarea O. Recreation areas and county units within these forests accommodated 261,200 visitors in 1960. The balance of the 0.9 million visitation in the subarea occurred at one national monument, six state parks, eight state fish and game areas, and two state forests scattered throughout the tri-state subarea. An accurate measure of recreational use of the mainstem of the Ohio River was not available. Unlike neighboring subareas, the Lower Ohio has no existing Corps of Engineers reservoir or Soil Conservation Service watershed impoundment.

The 1960 inventoried land and water acreages and visitation for Subarea 0 are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	168,533	52,283	NA	220,816
Water	199	2,245	NA	2,444
Recreation Days (millions)	0.3	0.5	NA	0.8

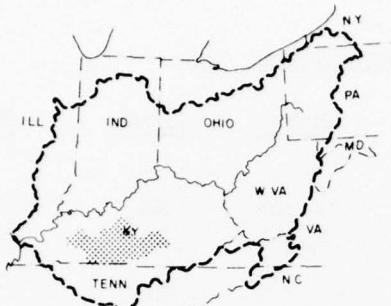
4. Recreation Needs. Comparisons of estimated outdoor recreation demand (4.3 million recreation days) with existing use (0.8 million) in 1960 at inventoried facilities indicated that approximately 20 percent of the total estimated demand was being met in the Lower Ohio Subarea. The resulting need (3.5 million), although relatively small in comparison to total basin need, will be difficult to satisfy at planned facilities. Available information on potential outdoor recreation development provides little hope of meeting the immediate or future recreation needs. The primary potential recreation areas fall within the Hoosier and Shawnee National Forests with total land and water additions of 29,780 and 37,850 acres, respectively. Total potential recreation waters inventoried amount to only 2,100 acres. Construction of additional Soil Conservation Service watershed projects will help meet existing and future needs, but it is reasonable to expect that a good portion of water-oriented needs in Subarea 0 will have to be met at impoundments in adjacent subareas. Further studies on water quality and recreation use of the mainstem of the Ohio River may open a new or expanding area to meet growing recreation needs in Lower Ohio.

Water-oriented recreation needs for the Lower Ohio Subarea are as follow:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	3.5	9.5	17.9	26.3

P. Green



area has a recreation season somewhat longer than northeastern subareas.

The smallest subarea in the Ohio River Basin in terms of total population, Green Subarea's population density is only 48.6 persons per square mile. Only 25 percent of the 393,100 population is considered urban, and according to the Projective Economic Study there is expected to be no significant increase in urbanization before 1980. Population projections reveal that Subarea P, containing no large metropolitan areas, will be one of the slowest growing subareas in the basin.

Agriculture has historically held the dominant position in the subarea's economy. Although rapidly declining as a source of employment, agriculture remained the chief employer in 1960 with nearly 27 percent of the labor force engaged in agrarian pursuits. Manufacturing is expected to nearly double in size of labor force by 1980 while the total number engaged in farming is expected to be reduced by half. The State of Kentucky's emphasis on tourism, coupled with construction of new reservoirs and scenic roads and parkways, should add impetus to tourism as a source of economic activity.

The Green Subarea contains a network of primary roads which complement a healthy outdoor recreation picture. Interstate 65, U.S. Routes 31 W, 41, 62, 68, 231, and the Kentucky Turnpike afford the traveler access to natural and man-made attractions within the subarea. Construction of 429 miles of scenic roads and parkways at a cost of approximately \$77 million, as proposed in the 1965 Kentucky Scenic Roads and Parkway Study, would provide additional access to recreation facilities as well as provide a recreation experience in themselves. The subarea's demand for sightseeing alone is estimated to exceed 7.5 million activity days by 1980.

2. Recreation Demand. The estimated demand for outdoor recreation in the Green Subarea, 4.2 million in 1960, was one of the lowest in the Ohio River Basin. This low demand resulted from the relatively small subarea population, absence of SMSA's within the subarea, and the distance from major SMSA's outside Subarea P used in calculating the effective

population. Estimates of annual demands in the target years are indicated in the following tabulation:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (<u>1,000's</u>)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	2,920	6,891	12,439	17,987
Boating	1,095	2,672	4,873	7,063
Water Skiing	173	533	1,064	1,593
Picnicking	1,685	3,370	5,577	7,768
Camping	332	1,102	2,297	3,486
Sightseeing	2,910	7,682	14,754	21,854
Nature Walks	1,274	2,370	3,656	4,930
Hiking	178	573	1,155	1,736
Total Activity Days	10,567	25,193	45,815	66,417
Total Recreation Days (millions)	4.2	10.1	18.3	26.6

3. Recreation Supply. A wealth of natural resources which offer a potential for diversified recreation opportunities abound within the Green Subarea. Yet to date, few of these resources have been developed to any great extent. During 1960 the inventoried land and water acreage set aside for outdoor recreation pursuits totaled 54,302 acres. The majority of these acres fall within the Mammoth Cave National Park which attracted nearly 3/4 million visitors in 1963, or approximately 70 percent of the inventoried total subarea visitation. One national historic site and five state fish and wildlife areas form the balance of recreation areas in the Green Subarea. The 1960 inventoried land and water acreages and visitation for Subarea P are indicated in the following table:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	51,471	2,831	NA	54,302
Water	660	1,810	NA	2,470
Recreation Days (millions)	0.9	NA	NA	0.9

4. Recreation Needs. Comparisons of recreation demand (4.2 million) with existing use (0.9 million) in 1960 indicated that 20 percent of the total estimated subarea demand was being met at

inventoried facilities. The resulting need, 3.3 million recreation days, could be substantially met at facilities now under construction, or which have been constructed since 1960. Three potential Corps of Engineers multiple-purpose reservoirs, Green (now under construction), Barren, and Nolin (completed since 1960), will add 24,000 additional acres of recreational water in the Green Subarea. The total capacity of these three reservoirs is estimated to be 1.5 million recreators annually. Construction of four proposed state parks and two Soil Conservation Service watershed projects will contribute greatly to meeting the overall subarea needs.

Water-oriented recreation needs for the Green Subarea are as follow:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	3.3	9.2	17.4	25.7

If all agencies involved in the construction of water-oriented recreation facilities continue to expand their programs at the present rate, it is highly possible that supply will exceed the demand created by the Green Subarea's effective population. But taking into account the abundant supply of potential recreation resources, it is reasonable to assume that the Green Subarea can, in the future, help alleviate a portion of the unsatisfied need in nearby subareas (O, N, K, and Q). A system of interstate routes to major SMSA's (Louisville and Cincinnati) will help make this possible.

Q. White



1. General. The White Subarea lies entirely within the State of Indiana and incorporates 33 counties which represent 13,522 square miles, or 37 percent of the total area of the Hoosier State. The northern half of the subarea is characterized by gently rolling till plains, low hills, and flat expanses of abandoned glacial lake beds. The southern portion is unglaciated with steep slopes and narrow river valleys.

The absence of natural lakes and

the low streamflow conditions in existing water bodies during the summer season have historically hampered water-oriented recreation development.

The 33 counties in the subarea embraced 1,782,900 inhabitants in 1960, representing 38.2 percent of the population of Indiana, and 9.4 percent of the total basin populace. The subarea's two SMSA's, Indianapolis and Muncie, house 45.3 percent of the subarea residents in less than six percent of the land area. By 1980 about 75 percent of the subarea residents are expected to be urban dwellers.

Although agriculture has been rapidly losing ground over the past few decades with only six percent of the subarea's labor force currently engaged in farming, the subarea is considered one of the principal agricultural areas in the Ohio River Basin. Manufacturing is expected to continue as the chief economic activity, but the percentage of the total labor force employed in the services field will increase. Increased interest in the construction of new water impoundments for recreation purposes is expected to put new emphasis on the tourism industry as an important segment of the subarea's economy.

Three interstate routes, I-65, I-70, and I-74, serve the White Subarea, but the present system of primary and secondary highways fails to provide adequate access to the existing and potential outdoor recreation resources of the subarea. The economic benefits which can be derived from the construction of a system of scenic roads and parkways opening the resources to tourists was recognized in Indiana University's report, Tourist Recreation Resources in Southern Indiana. The State of Indiana has since submitted a plan of proposed scenic parkways and roads which, if construction is undertaken, would provide an improved system of traffic flow and better access to both existing and future recreation facilities.

2. Recreation Demand. The estimated demand for recreation in the White Subarea during 1960 exceeded all other basin subareas except its neighbor to the west, the Wabash. Approximately nine percent

of the total basin demand, or 15.1 million recreation days, is ascribed to the White Subarea. This unusually high demand is largely a result of the high effective population, 1,765,900, created by the subarea's close proximity to major SMSA's; namely, Louisville, Cincinnati, Dayton, and Indianapolis. Projected demands for 1980 are closely correlated to the Indiana University tourism study which reported that the 1980 demand for recreation in Indiana is expected to be double the 1960 demand. Projected demands for target years follow:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)		
	<u>1960</u>	<u>1980</u>	<u>2000</u>
Swimming	10,401	24,546	44,308
Boating	3,903	9,523	17,368
Water Skiing	618	1,903	3,801
Picnicking	6,004	12,008	19,873
Camping	1,183	3,928	8,186
Sightseeing	10,366	27,366	52,556
Nature Walks	4,538	8,441	13,024
Hiking	636	2,048	4,128
Total Activity Days	37,649	89,763	163,244
Total Recreation Days (millions)	15.1	35.9	65.3
			94.6

3. Recreation Supply. Although the countryside of the White Subarea is not renowned as a vacation mecca, it contains within its borders natural resources long recognized for their recreation value. The picturesque canyons of McCormick's Creek, a tributary of the White River, were set aside as a state park in 1916, the same year the National Park Service was formed. In 1960, McCormick's Creek and five other state parks within the subarea accommodated nearly 0.75 million visitors. The shortage of adequate water for recreation is being partially remedied by the construction of multiple-purpose water impoundments by the Corps of Engineers and the Soil Conservation Service. Until the recent completion of the Monroe Reservoir, Cagles Mill Reservoir was the only Corps of Engineers impoundment within the subarea. This latter 1,400 acre reservoir was visited by over 400,000 recreators in 1963. Two smaller impoundments totaling 190 acres have been constructed by the Soil Conservation Service.

The Hoosier National Forest offers recreation opportunities in six counties within the subarea. Eight state forests encompassing 77,988 acres have made a significant contribution to meeting outdoor recreation needs. During a three-year period beginning in 1960, visitation at

these state forests more than doubled. A moderate amount of picnicking and camping at state fish and game areas round out the White Subarea's major outdoor recreation activity. Only one major local area having over 50 acres of water was inventoried in this study. The following chart summarizes the subarea's existing resources and 1960 visitation:

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	80,588	113,132	3,863	197,583
Water	2,882	2,172	610	5,664
Recreation Days (millions)	0.2	0.8	NA	1.0

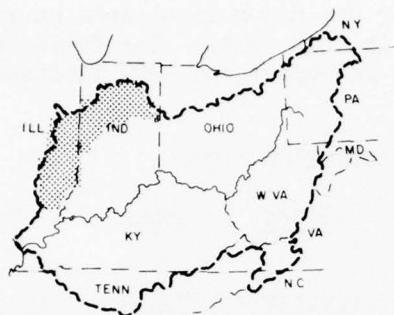
4. Recreation Needs. Comparisons of recreation demand (15.1 million) with existing use (1.0 million) in 1960 indicated that only 6.6 percent of the total estimated subarea demand was being met at inventoried facilities. This great imbalance between supply and demand, totaling nearly 14.1 million recreation days, could be largely attributed to insufficient water surface acreage for recreation pursuits. The recently completed 10,750-acre Monroe Reservoir is expected to absorb a portion of the current need for water-oriented recreation facilities. An additional 21 projects of 687 to 8,900 acres are now being constructed or studied by the Corps of Engineers. The Soil Conservation Service's present watershed program includes 19 projects having from 21 to 1,680 acres of water. These projects and the expansion programs of the Hoosier National Forest and the appropriate State agencies will contribute greatly to meeting the overall subarea needs. But the 1960 need is expected to more than double by the year 1980 and will increase greater than six times by the year 2020. Present planning for new impoundments will require substantial expansion if the projected recreation needs are to be adequately met. Taking into account the relative availability of potential resources and the high need for water-oriented opportunities in neighboring subareas, efforts should be concentrated on meeting the major portion of the needs within the subarea boundary. Limited resources in Subareas K and N may require that a portion of the needs in these subareas be planned for in Subareas Q.

Water-oriented recreation needs estimated for Subarea Q are as follow:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	14.1	34.9	64.3	93.6

R. Wabash



subarea lie within the Corn Belt and are largely unsuited for recreation development. But broad-basin tributaries of the Wabash River, covered by scattered forests, form numerous potential sites for the construction of man-made reservoirs for water-oriented recreation in a region largely void of natural lakes.

The Wabash Subarea's 1,362,400 residents represent seven percent of the total basin populace. Two SMSA's, Champaign-Urbana and Terre Haute, fall within the subarea and account for over 17 percent of the subarea population. Population is expected to increase from the present 1.4 million to 1.7 million by 1980 and 2.5 million by 2010.

Manufacturing is presently the major source of economic activity in the Wabash Subarea. According to the Projective Economic Study, manufacturing employment will increase 31 percent by 1980 and 78 percent by 2010 while agriculture employment will decrease 51 and 60 percent, respectively, during the same periods. Employment in services is expected to increase approximately 60 percent by 1980, a slightly greater gain than in the basin as a whole. The impact of tourism and recreation on the subarea's economy is difficult to compute, but tourism as an economic value will gain in significance as increased construction of reservoirs for water-oriented activities occurs.

The primary road system in the Wabash Subarea is presently inadequate. Many secondary state roads are in need of repair and/or expansion. Four interstate highways, I-57, 64, 70, and 74, will cross the subarea and provide the area with a much improved transportation system when completed. These roads will serve to make the area more easily accessible as well as bolster the economy through the promotion of tourism. A system of scenic roads and parkways could further add to the recreation development of the subarea. A bill to establish a Wabash River National Parkway is currently pending in Congress.

2. Recreation Demand. The demand for water-oriented outdoor recreation opportunities in the Wabash Subarea (16.4 million in 1960) exceeded all other subareas in the Ohio River Basin. This unusually high demand

was directly related to the high effective population focused upon the subarea by a total of 20 SMSA's which fall within the zone of this subarea's recreational influence. The primary SMSA's of St. Louis, Chicago, Toledo, Dayton, Cincinnati, Louisville, and Indianapolis circumscribe the Wabash Subarea. Estimated demands for target years are as follows:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	11,358	26,805	48,385	69,965
Boating	4,262	10,399	18,966	27,490
Water Skiing	675	2,079	4,151	6,217
Picnicking	6,556	13,112	21,700	30,223
Camping	1,292	4,289	8,941	13,566
Sightseeing	11,319	29,882	57,387	85,006
Nature Walks	4,956	9,218	14,224	19,180
Hiking	<u>694</u>	<u>2,235</u>	<u>4,504</u>	<u>6,766</u>
Total Activity Days	41,112	98,019	178,258	258,413
Total Recreation Days (millions)	16.4	39.2	71.3	103.4

3. Recreation Supply. Although ten state parks and recreation areas, one Corps of Engineers reservoir, six state fish and game areas, and three state forests are scattered throughout the subarea, the Wabash's inventoried existing land and water recreation acreage is only 48,000 acres. This ranks the Wabash with the basin subareas having the lowest acreages devoted to recreation.

Total visitation to all inventoried recreation areas in 1960 was 571,000. This facility use more than tripled by 1963 (1,931,000) largely due to the completion of recreation development at Mansfield Reservoir and increased use of existing state parks.

The 1960 inventoried land and water acreages and visitation for Subarea R are indicated in the table on the following page.

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	4,094	42,155	1,841	48,090
Water	2,060	4,909	470	7,439
Recreation Days (millions)	NA	0.6	0.3	0.9

4. Recreation Needs. Comparisons between recreation demand (16.4 million) in the Wabash Subarea and existing use (0.9 million) in 1960 indicated that less than six percent of the total estimated subarea demand was being met at inventoried facilities. The resulting need in each target year substantially exceeds the estimated need in all other basin subareas. An ambitious program of reservoir construction by the Corps of Engineers and a rapidly expanding watershed program by the Soil Conservation Service is expected to alleviate a substantial portion of the estimated needs.

A trio of reservoirs (Huntington, Salamonie, and Mississinewa) in the northeastern portion of the subarea are nearing completion and have been estimated to be capable of accommodating 1,265,000 visitors annually. Big Pine and Wildcat Creek Reservoirs in Indiana are expected to sustain an annual visitation of 500,000 and 700,000, respectively, if constructed. Three Corps reservoirs are planned or under construction in the Illinois portion of the subarea. Lincoln Reservoir estimates of visitation total 1,100,000. Construction of seven Soil Conservation Service watershed projects ranging in size from 120 to 600 acres of water is expected to provide additional water-oriented recreation opportunities.

In spite of ambitious programs by Federal, state, and local agencies, present proposals for expansion of existing and construction of new facilities fall far short of meeting estimated future needs. Interaction between Subarea R and Subarea Q could tend to equalize recreation need, but demand far exceeds supply in each subarea. (Total 1960 needs in these two subareas, 29.6 million recreation days, account for nearly 30 percent of total basin needs).

Estimates of water-oriented recreation needs for the Wabash Subarea relative to 1960 supply are as follows:

OUTDOOR RECREATION NEEDS

	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	15.5	38.3	70.4	102.5

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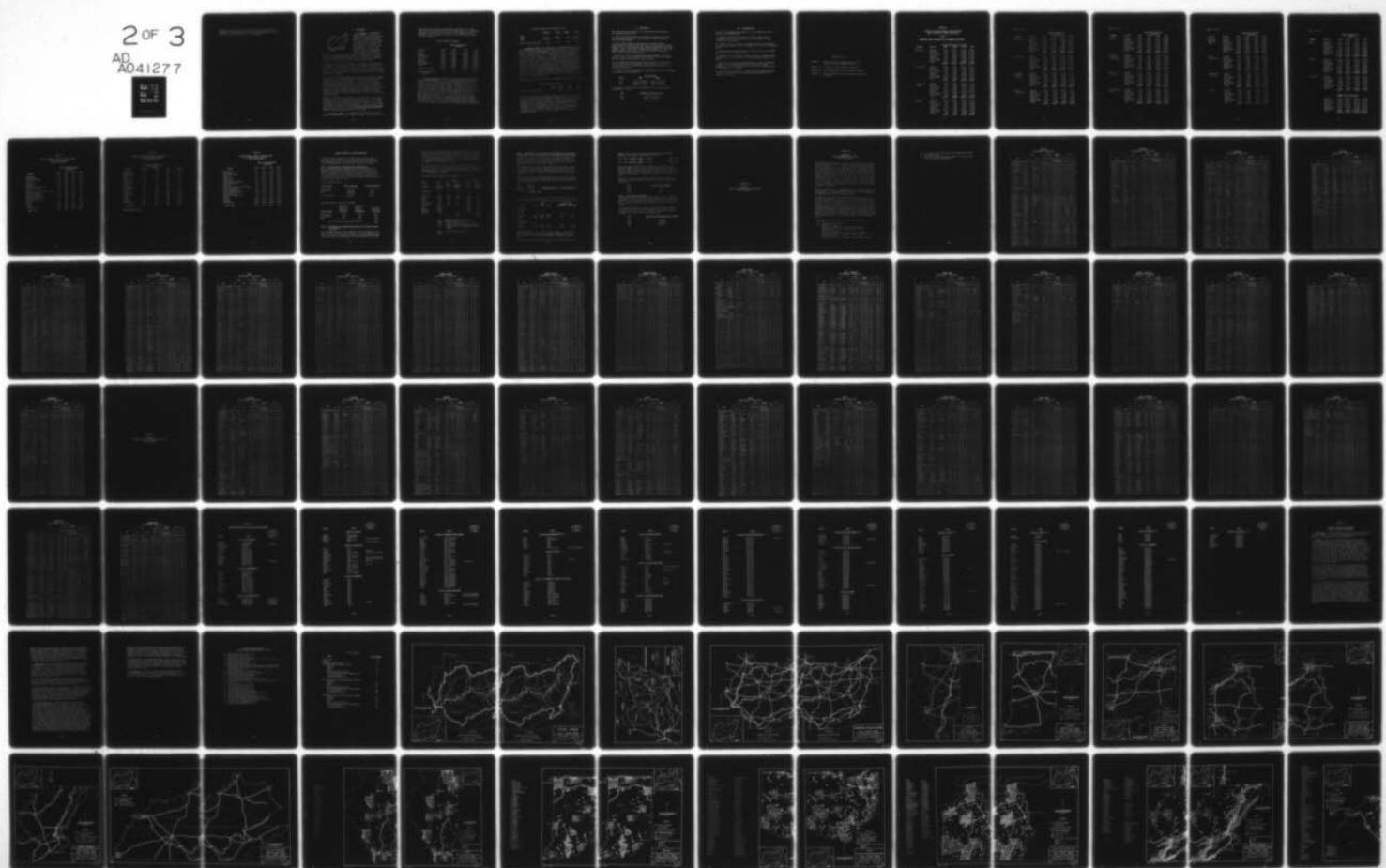
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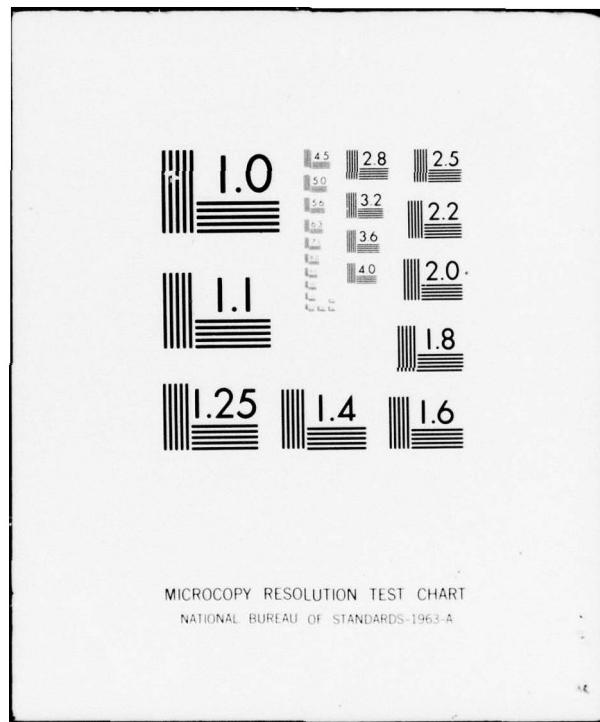
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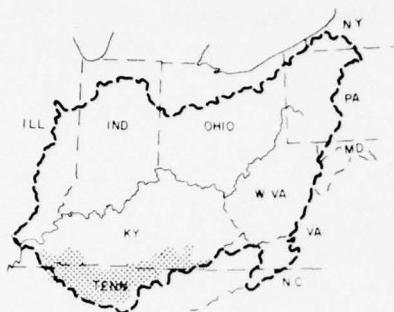
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Further detailed study of both the White and Wabash Subareas will be necessary to determine a plan of water resource development that will best satisfy the recreational need of these regions.

S. Cumberland



basin. The Cumberland Subarea incorporates 18 counties in Kentucky and 25 counties in Tennessee and contains 16,965 square miles, or approximately 10 percent of the total basin area. A long outdoor season contributes to an invigorating climate for recreation pursuits.

The Cumberland's 1,219,200 inhabitants (1960) represent approximately six percent of the total basin populace. An overall 25 percent growth in population is expected during the 1960-1980 period according to the Projective Economic Study. Urban population, the core of the recreation market, is projected to reach 50 percent of the total population by 1980. Nashville, recording nearly 0.4 million inhabitants in 1960, is the only SMSA within the subarea.

As in many of the basin subareas, agriculture has historically dominated the economy of the Cumberland Subarea. In recent years, however, agriculture has become a rapidly shrinking source of employment, being replaced by manufacturing and services. According to the Projective Economic Study, employment in agriculture will fall to five percent by 1980 while manufacturing and services will show a steady growth and account for 23 and 26 percents, respectively, by the same year. Tourism, now ranking third in the State of Tennessee's economy and seventh in Kentucky, is expected to gain importance in the subarea's economy as even greater numbers of tourists are attracted to existing and potential recreation areas.

Nashville forms the hub of a network of interstate routes serving the subarea. I-65, I-40, and I-24 provide high speed access to the recreation resources in the southwest portion of the subarea. I-75 crosses the northeast arm of the Cumberland Subarea affording excellent access from Lexington, Louisville, and points north. A system of scenic roads and parkways, as proposed in the 1965 Kentucky Scenic Roads and Parkway Study, would provide better access to existing facilities as well as additional sightseeing opportunities in the subarea.

2. Recreation Demand. The estimated demand for water-oriented recreation opportunities in the Cumberland Subarea (9.7 million in 1960)

ranks seventh in the basin. Approximately 90 percent of the demand originates within the subarea and its lone SMSA, Nashville. The balance originates at 10 SMSA's within 125 miles of the Cumberland Subarea. Estimates of annual demands in the target years are indicated in the following tabulation:

OUTDOOR RECREATION DEMANDS

<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Swimming	6,715	15,847	28,606	41,364
Boating	2,519	6,146	11,210	16,248
Water Skiing	399	1,229	2,454	3,675
Picnicking	3,876	7,752	12,830	17,868
Camping	764	2,536	5,287	8,022
Sightseeing	6,692	17,667	33,928	50,257
Nature Walks	2,930	5,540	8,409	11,339
Hiking	<u>410</u>	<u>1,320</u>	<u>2,661</u>	<u>3,998</u>
Total Activity Days	24,305	57,947	105,385	152,771
Total Recreation Days (millions)	9.7	23.2	42.4	61.1

3. Recreation Supply. Visitation to outdoor recreation areas within the Cumberland Subarea (12.4 million in 1960) exceeds all other basin subareas. Total inventoried land and water acreages set aside for recreation pursuits (663,053 acres in 1960) is surpassed by only the Allegheny and Kanawha-Little Kanawha Subareas. The amount of water for recreation (134,874 acres) exceeds the total of all water areas inventoried in the remaining 18 basin subareas. The unusually high visitation and resources is largely the result of development at five Corps of Engineers reservoirs, four National Park Service areas, 10 state parks, seven state forests, seven state fish and game areas, and portions of the Cumberland National Forest. The five Corps of Engineers reservoirs (Lake Cumberland, Center Hill, Cheatham, Dale Hollow, and Old Hickory) alone accounted for 11.5 million visitors at 126,000 acres of recreational waters in 1963. The 1960 inventoried land and water acreages and visitation for Subarea S are indicated in the table on the following page.

EXISTING RESOURCES AND VISITATION, 1960

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Total</u>
Acreage:				
Total	540,093	122,810	150	663,053
Water	133,955	830	89	134,874
Recreation Days (millions)	10.4	2.0	NA	12.4

4. Recreation Needs. The comparison of estimated recreation demand (9.7 million) with existing use (12.4 million in 1960) at inventoried facilities indicates that apparently no need currently exists for providing additional outdoor recreation opportunities in the Cumberland Subarea. This is a result of the relatively low effective population in an area of abundant resources. But projected growth forecasts indicate that potential recreators in the Cumberland will need facilities for an additional 11 million recreation days by 1980 and over 48 million recreation days by 2020. Construction of 11 planned Corps of Engineers reservoirs is expected to form the focal point of development designed to meet future water-oriented recreation needs. These 11 reservoirs alone will provide an additional 129,000 acres of recreational water, or nearly double existing water recreation opportunities. New and expanded facilities at four state parks is expected to meet a portion of the future needs. Water-related recreation demands will also be met at eight watershed projects (ranging in size from 20 to 750 acres) programmed by the Soil Conservation Service.

Water-oriented recreation needs for the Cumberland Subarea are as follows:

	OUTDOOR RECREATION NEEDS			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Recreation Days (millions)	-	10.8	29.8	48.7

Considering the wealth of potential recreation resources and relatively low need created within the subarea, the Cumberland is in a favorable position to help alleviate the needs originating in metropolitan centers beyond the zone of effective population. Weekend and vacation-type recreation facilities could be provided in the Cumberland Subarea to help meet needs as far away as St. Louis, Chicago, Cincinnati, and Indianapolis. The Cumberland, with the aid of the Tennessee Valley Authority's Between-the-Lakes project, will be capable of absorbing a considerable portion of the demands emanating from these major population centers.

VI. CONCLUSIONS

The study of outdoor recreation in the Ohio River Basin resulted in the following determinations:

1. All of the nineteen subareas delineated in the basin have a need for additional development to meet the outdoor recreation demands in each of the target years.
2. The estimated demands for water-oriented outdoor recreation opportunities in the target years 1980, 2000, and 2020 indicate a better than two-fold, four-fold, and six-fold increase, respectively, over the demands in 1960. The target year demands are estimated at: 1980 - 390.6 million recreation days, 2000 - 710.2 million recreation days, and 2020 - 1,029.6 million recreation days.
3. The 1960 visitation at inventoried facilities totaled 58.3 million recreation days. Lack of adequate data on resource capacities required that the inventoried visitation be used as supply.
4. The recreation needs (unsatisfied demands relative to 1960 supply) for the target years were determined to be: 1980 - 332.3 million recreation days, 2000 - 651.9 million recreation days, and 2020 - 971.3 million recreation days.
5. A range of resource requirements to accommodate the unsatisfied demands were estimated to be as follows:

<u>Year</u>	<u>Acres (1000's)</u>	
	<u>Land</u>	<u>Water</u>
1980	638.0 to 2,857.8	176.1 to 2,904.3
2000	1,160.4 to 5,801.9	365.1 to 6,056.2
2020	1,748.3 to 8,741.7	563.4 to 9,207.9

6. Estimates of capital costs of development to meet the unsatisfied demands were as follows:

<u>Year</u>	<u>Development Costs (millions)</u>
1980	\$ 747.7 to \$1,495.4
2000	1,466.8 to 2,933.6
2020	2,185.4 to 4,370.8

VII. RECOMMENDATIONS

In view of the determinations arrived at in the formulation of this study, it is recommended that:

1. Planning and development programs for water-oriented outdoor recreation resources be accelerated by all public agencies in each of the basin's 19 subareas.
2. Detailed studies of the basin's navigable waterways be undertaken to ascertain the extent to which the waterways can alleviate recreational needs.
3. Scenic roads and parkways be planned and constructed as an integral part of water resource developments.
4. Potential scenic riverways be studied in detail to determine their capabilities for meeting a portion of the water-related demands in the basin.
5. The Wabash, White, Pittsburgh SMSA, Muskingum, Little Miami-Miami, Allegheny, and Licking-Kentucky-Salt Subareas be given primary consideration for any detailed studies to alleviate the water-oriented recreational needs of the basin.
6. The recreational programs of all agencies administering recreation facilities be considered in any detailed planning studies of the subareas and the basin.

APPENDIXES I - IV

APPENDIX I - Tables of Recreation Demand, Supply and Need
Sample Procedure of Demand Methodology

APPENDIX II - Inventory of Outdoor Recreation Facilities

APPENDIX III - County Composition of Ohio River Basin Subareas

APPENDIX IV - Policies Affecting Water-Oriented Outdoor Recreation
Development

APPENDIX I

**TABLES OF RECREATION DEMAND, SUPPLY, AND NEED
SAMPLE PROCEDURE OF DEMAND METHODOLOGY**

TABLE I

ESTIMATED ANNUAL ACTIVITY DAYS BY SELECTED ACTIVITIES

<u>Subarea</u>	<u>Activity</u>	<u>Annual Activity Days (1,000's)</u>			
		<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
A-Allegheny	Swimming	7,776	18,351	33,126	47,900
	Boating	2,918	7,120	12,985	18,821
	Water Skiing	462	1,423	2,841	4,255
	Picnicking	4,489	8,978	14,858	20,694
	Camping	885	2,938	6,124	9,292
	Sightseeing	7,750	20,460	39,292	58,202
	Nature Walks	3,393	6,311	9,738	13,131
	Hiking	475	1,530	3,083	4,631
		<u>28,148</u>	<u>67,111</u>	<u>122,047</u>	<u>176,926</u>
B-Monongahela	Swimming	4,833	11,406	20,588	29,771
	Boating	1,813	4,424	8,068	11,694
	Water Skiing	287	884	1,765	2,643
	Picnicking	2,790	5,580	9,235	12,862
	Camping	550	1,826	3,806	5,775
	Sightseeing	4,816	12,714	24,417	36,168
	Nature Walks	2,109	3,923	6,053	8,162
	Hiking	295	950	1,914	2,876
		<u>17,493</u>	<u>41,707</u>	<u>75,846</u>	<u>109,951</u>
C-Pittsburgh SMSA	Swimming	8,975	21,181	38,234	55,286
	Boating	3,368	8,218	14,988	21,724
	Water Skiing	533	1,642	3,278	4,909
	Picnicking	5,181	10,362	17,149	23,884
	Camping	1,021	3,390	7,065	10,720
	Sightseeing	8,945	23,615	45,351	67,177
	Nature Walks	3,916	7,284	11,239	15,155
	Hiking	548	1,764	3,556	5,343
		<u>32,487</u>	<u>77,456</u>	<u>140,860</u>	<u>204,198</u>
D-Beaver	Swimming	5,272	12,442	22,459	32,476
	Boating	1,978	4,826	8,802	12,758
	Water Skiing	313	964	1,925	2,883
	Picnicking	3,043	6,086	10,072	14,028
	Camping	600	1,992	4,152	6,300
	Sightseeing	5,254	13,870	26,638	39,458
	Nature Walks	2,300	4,278	6,601	8,901
	Hiking	322	1,037	2,090	3,140
		<u>19,082</u>	<u>45,495</u>	<u>82,739</u>	<u>119,944</u>

Table I (con.)

<u>Subarea</u>	<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
		<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
E-Upper Ohio	Swimming	5,153	12,161	21,952	31,742
	Boating	1,934	4,719	8,606	12,474
	Water Skiing	306	942	1,882	2,818
	Picnicking	2,975	5,950	9,847	13,715
	Camping	586	1,946	4,055	6,153
	Sightseeing	5,136	13,559	26,040	38,571
	Nature Walks	2,248	4,181	6,452	8,700
	Hiking	315	1,014	2,044	3,071
		<u>18,653</u>	<u>44,472</u>	<u>80,878</u>	<u>117,244</u>
F-Muskingum	Swimming	8,585	20,261	36,572	52,884
	Boating	3,221	7,859	14,333	20,775
	Water Skiing	510	1,571	3,136	4,697
	Picnicking	4,956	9,912	16,404	22,847
	Camping	976	3,240	6,754	10,248
	Sightseeing	8,556	22,588	43,379	64,256
	Nature Walks	3,746	6,968	10,751	14,497
	Hiking	525	1,690	3,407	5,119
		<u>31,075</u>	<u>74,089</u>	<u>134,736</u>	<u>195,323</u>
G-Kanawha- Little Kanawha	Swimming	5,380	12,697	22,919	33,141
	Boating	2,019	4,926	8,984	13,022
	Water Skiing	320	986	1,968	2,947
	Picnicking	3,106	6,212	10,281	14,319
	Camping	612	2,032	4,235	6,426
	Sightseeing	5,362	14,156	27,185	40,269
	Nature Walks	2,347	4,365	6,736	9,083
	Hiking	329	1,059	2,135	3,208
		<u>19,475</u>	<u>46,433</u>	<u>84,443</u>	<u>122,415</u>
H-Ohio- Huntington	Swimming	2,964	6,995	12,627	18,258
	Boating	1,112	2,713	4,948	7,172
	Water Skiing	176	542	1,082	1,621
	Picnicking	1,711	3,422	5,663	7,888
	Camping	337	1,119	2,332	3,538
	Sightseeing	2,954	7,798	14,977	22,184
	Nature Walks	1,293	2,405	3,711	5,004
	Hiking	181	583	1,175	1,765
		<u>10,728</u>	<u>25,577</u>	<u>46,515</u>	<u>67,430</u>

Table I (con.)

<u>Subarea</u>	<u>Activity</u>	<u>Annual Activity Days</u> (1,000's)			
		<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
I-Scioto	Swimming	5,660	13,358	24,112	34,866
	Boating	2,124	5,182	9,452	13,700
	Water Skiing	336	1,035	2,066	3,094
	Picnicking	3,267	6,534	10,814	15,061
	Camping	644	2,138	4,456	6,762
	Sightseeing	5,640	14,890	28,595	42,356
	Nature Walks	2,470	4,594	7,089	9,559
	Hiking	346	1,114	2,245	3,374
		<u>20,487</u>	<u>48,845</u>	<u>88,829</u>	<u>128,772</u>
J-Guyandot- Big Sandy- Little Sandy	Swimming	3,302	7,793	14,066	20,340
	Boating	1,239	3,023	5,514	7,992
	Water Skiing	196	604	1,205	1,805
	Picnicking	1,906	3,812	6,309	8,787
	Camping	376	1,248	2,602	3,948
	Sightseeing	3,291	8,688	16,685	24,715
	Nature Walks	1,441	2,680	4,136	5,577
	Hiking	202	650	1,311	1,970
		<u>11,953</u>	<u>28,498</u>	<u>51,828</u>	<u>75,134</u>
K-Ohio- Cincinnati	Swimming	4,543	10,721	19,353	27,985
	Boating	1,704	4,158	7,583	10,991
	Water Skiing	270	832	1,660	2,487
	Picnicking	2,622	5,244	8,679	12,087
	Camping	517	1,716	3,578	5,428
	Sightseeing	4,528	11,954	22,957	34,005
	Nature Walks	1,982	3,686	5,688	7,670
	Hiking	278	895	1,804	2,710
		<u>16,444</u>	<u>39,206</u>	<u>71,302</u>	<u>103,363</u>
L-Little Miami- Miami	Swimming	7,754	18,299	33,032	47,765
	Boating	2,909	7,098	12,945	18,763
	Water Skiing	461	1,420	2,835	4,246
	Picnicking	4,476	8,952	14,816	20,634
	Camping	882	2,928	6,103	9,261
	Sightseeing	7,727	20,399	39,176	58,030
	Nature Walks	3,383	6,292	9,709	13,092
	Hiking	474	1,526	3,076	4,622
		<u>28,066</u>	<u>66,914</u>	<u>121,692</u>	<u>176,413</u>

Table I (con.)

<u>Subarea</u>	<u>Activity</u>	<u>Annual Activity Days</u> <u>(1,000's)</u>		
		<u>1960</u>	<u>1980</u>	<u>2000</u>
M-Licking- Kentucky- Salt	Swimming	5,968	14,084	25,424
	Boating	2,239	5,463	9,964
	Water Skiing	355	1,093	2,183
	Picnicking	3,445	6,890	11,403
	Camping	679	2,254	4,699
	Sightseeing	5,948	15,703	30,156
	Nature Walks	2,604	4,843	7,473
	Hiking	365	1,175	2,369
		<u>21,603</u>	<u>51,505</u>	<u>93,671</u>
				<u>135,791</u>
N-Ohio- Louisville	Swimming	2,596	6,126	11,059
	Boating	974	2,376	4,334
	Water Skiing	154	474	947
	Picnicking	1,498	2,996	4,958
	Camping	295	979	2,041
	Sightseeing	2,587	6,830	13,116
	Nature Walks	1,132	2,106	3,249
	Hiking	159	512	1,032
		<u>9,395</u>	<u>22,399</u>	<u>40,736</u>
				<u>59,054</u>
O-Lower Ohio- Evansville	Swimming	2,977	7,026	12,682
	Boating	1,117	2,725	4,971
	Water Skiing	177	545	1,088
	Picnicking	1,719	3,438	5,690
	Camping	339	1,125	2,346
	Sightseeing	2,967	7,833	15,043
	Nature Walks	1,299	2,416	3,728
	Hiking	182	586	1,181
		<u>10,777</u>	<u>25,694</u>	<u>46,729</u>
				<u>67,740</u>
P-Green	Swimming	2,920	6,891	12,439
	Boating	1,095	2,672	4,873
	Water Skiing	173	533	1,064
	Picnicking	1,685	3,370	5,577
	Camping	332	1,102	2,297
	Sightseeing	2,910	7,682	14,754
	Nature Walks	1,274	2,370	3,656
	Hiking	178	573	1,155
		<u>10,567</u>	<u>25,193</u>	<u>45,815</u>
				<u>66,417</u>

Table I (con.)

<u>Subarea</u>	<u>Activity</u>	<u>Annual Activity Days</u> (<u>1000's</u>)			
		<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
Q-White	Swimming	10,401	24,546	44,308	64,070
	Boating	3,903	9,523	17,368	25,174
	Water Skiing	618	1,903	3,801	5,692
	Picnicking	6,004	12,008	19,873	27,678
	Camping	1,183	3,928	8,186	12,422
	Sightseeing	10,366	27,366	52,556	77,849
	Nature Walks	4,538	8,441	13,024	17,562
	Hiking	636	2,048	4,128	6,201
		<u>37,649</u>	<u>89,763</u>	<u>163,244</u>	<u>236,648</u>
R-Wabash	Swimming	11,358	26,805	48,385	69,965
	Boating	4,262	10,399	18,966	27,490
	Water Skiing	675	2,079	4,151	6,217
	Picnicking	6,556	13,112	21,700	30,223
	Camping	1,292	4,289	8,941	13,566
	Sightseeing	11,319	29,882	57,387	85,006
	Nature Walks	4,956	9,218	14,224	19,180
	Hiking	694	2,235	4,504	6,766
		<u>41,112</u>	<u>98,019</u>	<u>178,258</u>	<u>258,413</u>
S-Cumberland	Swimming	6,715	15,847	28,606	41,364
	Boating	2,519	6,146	11,210	16,248
	Water Skiing	399	1,229	2,454	3,675
	Picnicking	3,876	7,752	12,830	17,868
	Camping	764	2,536	5,287	8,022
	Sightseeing	6,692	17,667	33,928	50,257
	Nature Walks	2,930	5,450	8,409	11,339
	Hiking	410	1,320	2,661	3,998
		<u>24,305</u>	<u>57,947</u>	<u>105,385</u>	<u>152,771</u>
<u>SUMMARY - OHIO RIVER BASIN</u>					
	Swimming	113,132	266,990	481,943	696,892
	Boating	42,448	103,570	188,894	273,790
	Water Skiing	6,721	20,701	41,331	61,900
	Picnicking	65,305	130,610	216,158	301,054
	Camping	12,870	42,726	89,059	135,135
	Sightseeing	112,748	297,654	571,632	846,736
	Nature Walks	49,361	91,811	141,666	191,027
	Hiking	6,914	22,261	44,870	67,413
		<u>409,499</u>	<u>976,323</u>	<u>1,775,553</u>	<u>2,573,947</u>

TABLE II
ESTIMATED ANNUAL OUTDOOR RECREATION DEMANDS
BY BASIN ECONOMIC SUBAREAS
OHIO RIVER BASIN

<u>Subarea</u>	<u>Annual Recreation Days</u> <u>(millions)</u>			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
A-Allegheny	11.2	26.8	48.8	70.8
B-Monongahela	7.0	16.7	30.3	44.0
C-Pittsburgh SMSA	13.0	31.0	56.3	81.7
D-Beaver	7.6	18.2	33.1	48.0
E-Upper Ohio	7.5	17.8	32.4	46.9
F-Muskingum	12.4	29.6	53.9	78.1
G-Kanawha-Little Kanawha	7.8	18.6	33.8	49.0
H-Ohio-Huntington	4.3	10.2	18.6	27.0
I-Scioto	8.2	19.5	35.5	51.5
J-Guyandot-Big Sandy-Little Sandy	4.8	11.4	20.7	30.0
K-Ohio-Cincinnati	6.6	15.7	28.5	41.3
L-Little Miami-Miami	11.2	26.8	48.7	70.6
M-Licking-Kentucky-Salt	8.6	20.6	37.5	54.3
N-Ohio-Louisville	3.8	9.0	16.3	23.6
O-Lower Ohio-Evansville	4.3	10.3	18.7	27.1
P-Green	4.2	10.1	18.3	26.6
Q-White	15.1	35.9	65.3	94.6
R-Wabash	16.4	39.2	71.3	103.4
S-Cumberland	9.7	23.2	42.2	61.1
BASIN TOTAL	163.7	390.6	710.2	1,029.6

TABLE III
SUMMARY OF INVENTORIED ANNUAL ATTENDANCE - 1960*
BY BASIN ECONOMIC SUBAREAS
OHIO RIVER BASIN

Subarea	Annual Recreation Days (millions)			Total
	Federal	State	Local	
A-Allegheny	3.6	5.4	NA	9.0
B-Monongahela	1.1	1.4	NA	2.5
C-Pittsburgh	0.1	0.7	2.5	3.3
D-Beaver	0.5	(0.03)	1.3	1.8
E-Upper Ohio	0.7	1.0	NA	1.7
F-Muskingum	(0.01)	1.0	1.8	2.8
G-Kanawha	3.6	1.1	NA	4.7
H-Huntington	0.1	1.6	NA	1.7
I-Scioto	0.4	4.3	NA	4.7
J-Guyandot	0.2	0.2	NA	0.4
K-Cincinnati	1.6	0.5	1.4	3.5
L-Miami	NA	4.5	0.5	5.0
M-Licking	0.3	0.3	NA	0.6
N-Louisville	0.1	0.5	NA	0.6
O-Evansville	0.3	0.5	NA	0.8
P-Green	0.9	NA	NA	0.9
Q-White	0.2	0.8	NA	1.0
R-Wabash	NA	0.6	0.3	0.9
S-Cumberland	<u>10.4</u>	<u>2.0</u>	<u>NA</u>	<u>12.4</u>
BASIN TOTAL	24.1	26.4	7.8	58.3

* Used as 1960 supply

TABLE IV
ESTIMATED ANNUAL OUTDOOR RECREATION NEEDS
BY BASIN ECONOMIC SUBAREAS
OHIO RIVER BASIN

<u>Subarea</u>	<u>Annual Recreation Days</u> (millions)			
	<u>1960</u>	<u>1980</u>	<u>2000</u>	<u>2020</u>
A-Allegheny	2.2	17.8	39.8	61.8
B-Monongahela	4.5	14.2	27.8	41.5
C-Pittsburgh SMSA	9.7	27.7	53.0	78.4
D-Beaver	5.8	16.4	31.3	46.2
E-Upper Ohio	5.8	16.1	30.7	45.2
F-Muskingum	9.6	26.8	51.1	75.3
G-Kanawha-Little Kanawha	3.1	13.9	29.1	44.3
H-Ohio-Huntington	2.6	8.5	16.9	25.3
I-Scioto	3.5	14.8	30.8	46.8
J-Guyandot-Big Sandy-Little Sandy	4.4	11.0	20.3	29.6
K-Ohio-Cincinnati	3.1	12.2	25.0	37.8
L-Little Miami-Miami	6.2	21.8	43.7	65.6
M-Licking-Kentucky-Salt	8.0	20.0	36.9	53.7
N-Ohio-Louisville	3.2	8.4	15.7	23.0
O-Lower Ohio-Evansville	3.5	9.5	17.9	26.3
P-Green	3.3	9.2	17.4	25.7
Q-White	14.1	34.9	64.3	93.6
R-Wabash	15.5	38.3	70.4	102.5
S-Cumberland	- 2.7	10.8	29.8	48.7
 BASIN TOTAL	 105.4	 332.3	 651.9	 971.3

SAMPLE PROCEDURE OF DEMAND METHODOLOGY

In order to better illustrate the demand projection methodology presented in Chapter III, the following sample procedure is offered. The estimation of annual recreation demand (activity days) for water skiing in Subarea D has been selected for illustrative purposes.

Step 1. Determination of Applicable Participation Rates.

Basin participation rates determined from the Outdoor Recreation Resources Review Commission (ORRRC) Report 19 were applied to each subarea. The basin lies within three of the four census regions for which the ORRRC Study presented participation rates. Therefore, the basin participation rates were developed by apportioning the three regional participation rates according to the amount of basin population residing in each region in 1960.

Population Apportionment:

Census Region	Basin Population	% Basin Population
North Central	9,411,800	49.5
North East	3,774,300	19.9
South	<u>5,814,500</u>	<u>30.6</u>
Total (Basin)	19,000,600	100.0%

Annual Participation Rate (Water Skiing):

Census Region	ORRRC Study Report 19 Participation Rate	Adjustment Factor (% Basin Population)	Adjusted Participation Rate
North Central	0.27	.495	0.13
North East	0.32	.199	0.06
South	0.54	.306	<u>0.16</u>
Basin Participation Rate (Water Skiing)			<u>0.35</u>

Step 2. Determination of Population Affecting the Recreation Demand in Subarea D.

Effective SMSA Population: Two concentric circles having radii of 40 and 125 miles were drawn around the major city of each SMSA within 125 miles of the Subarea D boundary (including the Youngstown-Warren SMSA within the subarea). The portions of the subarea within each of the

two circles were planimetered and the proportions of these areas to the total circle areas were determined. Assuming 60 percent of the SMSA population would be willing to travel 40 miles and 90 percent would go as far as 125 miles (30 percent from 40 to 125 miles) for recreation use, the area proportions were multiplied by the appropriate percent (60 or 30) of the total SMSA population to determine the population of each SMSA which would affect the subarea.

Total effective population in the subarea: The non-SMSA population of the subarea was added to the sum of effective SMSA populations to arrive at a total effective population for the subarea. The Subarea D non-SMSA population is the total subarea population minus the population of the Youngstown-Warren SMSA.

The following table illustrates the mathematical procedure for determining the population affecting Subarea D.

SMSA's Within <u>125 Miles</u>	1960 Popu- lation (1000's)	40-Mile		40-125 Mile	
		Adjust- ment Factor	Effec- tive Pop- ulation (1000's)	Adjust- ment Factor	Effec- tive Pop- ulation (1000's)
Youngstown- Warren	509.0	.294	149.6	.005	2.5
Cleveland	1796.5	.012	21.6	.020	35.9
Akron	513.5	.029	14.9	.019	9.8
Canton	340.3	.048	16.3	.018	6.1
Elyria	217.5	-	-	.018	3.9
Steubenville	167.7	.031	5.2	.018	3.0
Pittsburgh	2405.4	.090	216.5	.016	38.5
Wheeling	190.3	-	-	.020	3.8
Erie	250.6	-	-	.020	5.0
Buffalo	1306.9	-	-	.001	1.3
Johnstown	280.7	-	-	.016	4.5
Altoona	137.2	-	-	.012	1.6
			424.1		115.9

424.1 Population within 40 mile circle.
115.9 Population within 40-125 mile circle.
540.0 Effective SMSA population.
355.1 Non-SMSA population (Subarea D population minus population of Youngstown-Warren SMSA)

895.1 Total Effective Population.

Step 3. Determination of Increases in Demand Applicable to the Basin.
 The National percent increases in demand for various outdoor recreation activities are presented in Table 6, page 22, ORRRC Study Report 26, for the 1960-1976 and 1960-2000 periods. The percent increases were plotted graphically for water skiing (135 percent for 1960-1976 and 476 percent for 1960-2000 assuming an increase in quality and quantity of facilities available on a per capita basis).

The National percent increases were determined for 1980 and 2010 based on a straight line relationship from 1976 through 2000. The figures thus derived indicated that the National demand for water skiing in 1980 and 2010 would be 2.93 and 7.18 times, respectively, the demand in 1960.

In order to relate basin demand increase rates with those of the Nation, it was assumed that demand increase rates are directly (and primarily) related to increase rates of income and population, and the following equation was developed:

$$\begin{aligned} \text{Basin Demand Increase} &= \frac{\text{National Demand Increase}}{\text{National Pop. Incr.}} \times \frac{(\text{Basin Pop. Incr.})}{\text{National Pop. Incr.}} \times \frac{\text{Basin Income Incr.}}{\text{National Income I.}} \\ \text{BDI} &= \text{NDI} \left(\frac{\text{BPI}}{\text{NPI}} \times \frac{\text{BII}}{\text{NII}} \right) \end{aligned}$$

The following information was provided by the Projective Economic Study:

<u>Item</u>	<u>Year</u>			<u>Increase Rates</u>	
	<u>1960</u>	<u>1980</u>	<u>2010</u>	<u>1960-1980</u>	<u>1960-2010</u>
Personal Per Capita Income:					
National*	\$1924	\$2806	\$4762	1.46	2.48
Basin	\$1983	\$3408	\$6695	1.71	3.37
Population (Millions):					
National	179.8	244.8	378.2	1.36	2.10
Basin	19.0	23.1	31.6	1.22	1.66

 *Determined from the equation $Y_p = 5.9338 + .808Y_{GNP} - .5050t$, where Y_p = Personal Income, Y_{GNP} = Gross National Product, and t = time; where 1929 = 0; found on page C-17, Appendix C, Projective Economic Study.

Applying these figures to the preceding equation for basin demand increases, the following relationships were found:

$$1980: \text{BDI} = \text{NDI} \left(\frac{1.22}{1.36} \times \frac{1.71}{1.46} \right) = 1.05 \text{NDI} \quad \text{NDI} = 2.93$$

$$2010: \text{BDI} = \text{NDI} \left(\frac{1.66}{2.10} \times \frac{3.37}{2.46} \right) = 1.07 \text{NDI} \quad \text{NDI} = 7.18$$

The basin demand increase was thus estimated to be 1.05 times the National demand increase of 2.93 for water skiing in 1980. Thus, the basin demand for water skiing in 1980 is expected to be 3.08 times as much as the 1960 water skiing demand. Similarly, the 1960 basin demand for water skiing is expected to increase 7.68 times by the year 2010.

Assuming the demands would increase linearly from 1980 to 2020, the increases in the 1960 demand for water skiing were determined for the target years:

<u>Year</u>	<u>Increase in 1960 Demand</u>
1980	3.08
2000	6.15
2020	9.21

Step 4. Determination of Demands.

The 1960 basin demand for water skiing in Subarea D was determined by multiplying the participation rate (0.35) found in Step 1 by the sub-area's effective population (895,100) found in Step 2. The 1960 demand for water skiing in Subarea D was determined to be 313,000 activity days.

The subarea demands for water skiing in the target years were arrived at by applying the demand increase rates derived in Step 3 to the estimated 1960 demands. Thus, the following demands for water skiing in Subarea D were determined for the target years:

<u>Year</u>	<u>Demand for Water Skiing (Activity Days)</u>
1960	313,000
1980	964,000
2000	1,925,000
2020	2,883,000

APPENDIX II

INVENTORY
EXISTING OUTDOOR RECREATION FACILITIES
OHIO RIVER BASIN

APPENDIX II

INVENTORY OUTDOOR RECREATION FACILITIES OHIO RIVER BASIN

The inventory of existing and potential recreation facilities in the Ohio River Basin was developed primarily from the Nationwide Planning effort being conducted by this Bureau. The tabulations of data are on a state basis and facilities are catalogued by administrative agencies. The forms for existing areas show facility locations by county within a subarea or the included study area, total (land and water) acreage and water acreage in each area, general recreation activities available, and the attendance at each area in 1960 and 1963 where such information was available. The existing areas are considered as those open for use in the base year, 1960. The forms for potential areas include both programmed future facilities and developments placed in operation after 1960. The most recent attendance figures or estimates of future attendance are presented for the potential areas where such information is available.

While the primary source of inventory data was the Bureau's Nationwide Planning effort, additional information for potential developments was furnished by the Soil Conservation Service, the Corps of Engineers, and pamphlets and brochures of other agencies.

The inventory includes all Federal areas, state areas exclusive of monuments and memorials, and only those major local areas having over 50 acres of water. The limitations on collection of data were established to reduce the cumbersome task of a full inventory and to orient the study more toward recreational developments which are water-enhanced or water-dependent. Private areas were not inventoried because comparable information was not readily available for each state. Studies of private developments are now underway by the Bureau of Outdoor Recreation on a nationwide sampling basis, and the National Association of Soil and Water Conservation Districts (NACD) is developing an inventory of the private sector in conjunction with the Soil Conservation Service.

An explanation of symbols used on the inventory forms follows:

- NA Information not available.
- a Adjoins water area.
- b Minimum or seasonal pool. Obtained from Corps of Engineers water resource development pamphlets or project data sheets.
- c Preliminary estimates by Bureau of Outdoor Recreation.
- d Capacity of programmed facilities estimated by the Corps of Engineers.
- e Visitation adjusted by proportional assignments of total.

- * P. L. 566 project constructed by Soil Conservation Service.
- ** No permanent pool.
- () Included in figures for another area, i.e., Corps, another state, another state agency, etc.

ILLINOIS
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION					
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA	
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA											
FEDERAL																	
U. S. Forest Service:																	
Shawnee National Forest			125871	85663	186	55	x	x	x	x			203800	136000	467300	193600	
Recreation Areas					1												
Pounds Hollow	Gallatin	O-Evansville	1300	26			x	x	x	x			56000		91800		
Lake Glendale	Pope	O-Evansville	660	50			x	x	x	x			40500		47500		
Lincoln Memorial	Union				8		1	x						29900		30700	
County Units																	
Union	Union		30669			10	x			x			44900		45700		
Massac	Massac	O-Evansville	3034	-									300		2400		
Pope	Pope	O-Evansville	76232	55			x	x	x	x			62500		194300		
Jonson	Johnson	O-Evansville	6457	5									2100		7100		
Hardin	Hardin	O-Evansville	17442	10			x	x	x	x			30600		65900		
Alexander	Alexander		24996			4	x	x						13600		23200	
Saline	Saline	O-Evansville	10917	-			x	x					6100		16300		
Jackson	Jackson		30011			40	x	x					47600		94000		
Gallatin	Gallatin	O-Evansville	7829	8									5100		39000		
U. S. Fish & Wildlife Service:																	
Crab Orchard National																	
Wildlife Area	Williamson		44000		6000	x	x	x	x				NA		NA		
STATE																	
State Parks:																	
Dixon Springs	Pope	O-Evansville	399	-			x	x	x	x			52600		50300		
Fort Massac	Massac	O-Evansville	836	-			x	x	x	x			87000		125100		
Cave-In-Rock	Hardin	O-Evansville	64	-			x	x	x				118400		159600		
Ferne Clyffe	Johnson	O-Evansville	1020	12			x	x					58500		81500		
Red Hills	Lawrence	R-Wabash	946	40			x	x	x				73600		104200		
Kankakee River	Kankakee		2224			-	x	x	x				399500		542500		
Lincoln Trail	Clark	R-Wabash	941	150*			x	x	x				69000		116600		
Giant City	Jackson		1792	-			x	x	x	x			111000		285200		
Spitzer Woods	Macon		203	-			x	x					27200		47600		
Spring Lake	Tazewell		1584		1265	x	x	x					22700		99600		
Starved Rock	LaSalle		1451	-			x	x	x	x			529900		111500		
Buffalo Rock	LaSalle		43	-			x	x					125100		NA		
Chain O'Lakes	Lake		960	45			x	x	x				225200		317100		
Lincoln's New Salem	Menard		329	-			x	x	x	x			97100		941700		
Matthiessen State Park																	
Nature Area	LaSalle		175	-			x						26900		216500		
State Recreation Areas:																	
Fox Ridge	Coles	R-Wabash	752	16			x	x	x	x			44600		82000		
Kickapoo	Vermilion	R-Wabash	1539	120			x	x	x				77600		315500		
Lake Murphysboro	Jackson		904		166	x	x	x					67300		205000		
Grand Marais	St. Clair		1125		213	x	x	x					34500		136900		
Ramsey Lake	Fayette		815	50	x	x	x						62000		72700		
Weldon Springs	DeWitt		119	28	x	x	x						79200		126200		
Illini	LaSalle		406	-	x	x	x						235000		119600		
Channahon Parkway	Will		22	2	x	x	x						78700		62700		
Illinois Beach	Lake		1151	-	x	x	x	x	x	x			575600		945000		
Des Plaines	Will		4252	400			x						NA		5400		
State Conservation Areas:																	
Wolf Lake	Cook		580	450	x	x	x						2600		NA		
Horsehoe Lake	Alexander		7901	2400	x	x	x						95600		108000		
Union	Union		6202	213									-		-		
Woodford County	Woodford		2896	2790	x	x	x						NA		23700		
Marshall County	Marshall		2615	2000	x	x	x						NA		NA		
Spariland	Marshall		1251	1100			x						NA		NA		

ILLINOIS RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA									
State Conservation Areas:															
(con.)															
Iroquois County	Iroquois		1920	-				x					NA		1600
Chain O'Lakes	Lake		3254		2655		x						NA		600
Jasper County	Jasper	R-Wabash	297	-									NA		NA
Hamilton County Lake	Hamilton	R-Wabash	500	76									NA		NA
McHenry Dam	McHenry		-		54	x	x						50500		12200
Saline County	Saline	O-Evansville	528	105	x	x							NA		NA
Spring Branch	Peoria		410		360								NA		NA
Washington County	Washington		1364		355	x	x	x					NA		26200
Wayne County	Wayne	R-Wabash	1252	198	x	x	x						NA		36300
Mermet Lake	Massac	O-Evansville	2461	690	x	x							NA		NA
State Forests:															
Shelby County	Shelby		1026	-	x								NA		NA
Union	Union		3753	-	x								NA		35200
MAJOR LOCAL															
County Forest Preserves:															
Will	Will		900	-	x	x							NA		NA
Lake	Lake		1009	-	x								NA		NA
Kane	Kane		410		80	x	x	x					NA		36200
DeKalb	DeKalb		273	-	x	x							NA		NA
DuPage	DuPage		1960	-	x	x							NA		NA
Cook	Cook		23000		14277	x	x	x	x				6124700		7905000
Platt	Platt		1000		50	x							NA		450000
Champaign	Champaign	R-Wabash	441	50	x	x	x	x	x			325000		450000	
Reservoir Park	Jackson		250		150	x	x	x	x				5500		6000
Lake Bloomington	McLean		1235		635	x	x	x	x				NA		NA
Lake Springfield	Sangamon		1600		4500	x	x	x	x				NA		NA

INDIANA
RECREATION INVENTORY

EXISTING AREA	LOCATION	ACRAGE				GENERAL RECREATION ACTIVITIES				VISITATION			
		TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	BASIN	STUDY AREA	BASIN	STUDY AREA
		BASIN	STUDY AREA	BASIN	STUDY AREA	OTHER							
FEDERAL													
Corps of Engineers:													
Cagles Mill Reservoir	Owen-Putnam	Q-White	7250	1400		x	x	x	x	185000		409300	
Mansfield Reservoir	Parke	R-Wabash	4094	2060		x	x	x	x	NA		532500	
National Park Service:													
Lincoln Boyhood National Monument (Formerly Nancy Hanks State Memorial)	Spencer	O-Evansville	200	-					x	75000		110000	
U. S. Forest Service:													
Hosier National Forest			124220	1510		x	x	x	x	111500		175500	
Recreation Areas													
Buzzard Roost	Perry	O-Evansville	60	-		x	x			NA		NA	
German Ridge County Units	Perry	O-Evansville	324	4		x	x	x	x	7700		12100	
Brown	Brown	Q-White	13997	576						7900		12400	
Jackson	Jackson	Q-White	16264	16						9600		15100	
Lawrence	Lawrence	Q-White	9374	392		x				5300		8400	
Martin	Martin	Q-White	4239	113						2900		3900	
Monroe	Monroe	Q-White	15732	385		x				9600		14200	
Crawford	Crawford	N-Louisville	8420	15		x				7600		11900	
Orange	Orange	Q-White	13832	-		x				12200		19200	
Perry	Perry	O-Evansville	42075	9		x				49700		78300	
STATE													
State Parks:													
Indiana Dunes	Porter		2162	-		x	x	x	x	447000		535100	
Pokagon	Steuben		956	1444		x	x	x	x	199300		337100	
Chain O Lakes	Nobel	R-Wabash	1414	156		x	x	x	x	600		25500	
Tippecanoe River	Pulaski	R-Wabash	2744	-		x	x	x	x	27300		66500	
Kankakee River	Lake		1794	-		x	x	x			10400		10700
Turkey Run	Parke	R-Wabash	1521	-		x	x		x	195500		284900	
Shades	Pike	R-Wabash	1977	-		x	x		x	39200		70500	
Mounds	Madison	Q-White	254	-		x	x		x	5400		62700	
Whitewater	Union	R-Little Miami	1515	19		x	x	x		192000		219100	
Versailles	Ripley	K-Cincinnati	513	230		x	x	x	x	133000		206000	
City Falls	Jefferson	N-Louisville	66	-		x	x		x	125500		18400	
Brown County	Brown	Q-White	15332	30		x	x	x	x	202200		424100	
McCormick's Creek	Owen	Q-White	1225	-		x	x	x	x	157200		225600	
Lester	Owen	Q-White	561	(1400)		x	x	x	x	121300		234300	
Spring Mill	Lawrence	Q-White	1210	28		x	x	x	x	197500		274600	
Lincoln	Spencer	N-Louisville	1540	35		x	x	x	x	81600		136400	
State Recreation Areas:													
Muscatatuck	Jennings	Q-White	261	-		x	x			x	NA	19600	
Shakamak	Sullivan	R-Wabash	1020	100		x	x	x	x	NA		141700	
Scales Lake	Warrick	O-Evansville	477	70		x	x	x	x	NA		35580	
Bass Lake	Starke		20	1405 ^a		x	x	x	x		37300		7320
Quaache	Wells	R-Wabash	5652	-						NA		19500	
State Fish and Game Areas:													
Cresley	Jennings	Q-White	3530	20		x	x	x		2500		5000	
Glendale	Daviess	Q-White	6502	1300						3200		5000	
Hoey Lake	Posey	O-Evansville	585	300		x	x	x		3300		7100	
Jasper - Pulaski	Jasper	R-Wabash	7360	1500		x	x	x		5000		49400	
Coon Marsh	Starke		2302	400		x	x	x			15000		13400
La Salle	Newton		3064	310		x	x	x			2500		5900
Pigeon River	La Grange		5819	180		x	x	x			8300		25500
Tri-County	Kosciusko	R-Wabash	3030	546						10200		15000	

INDIANA RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES				VISITATION				
			TOTAL		WATER		PICNICKING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA										
State Fish and Game Areas; (con.)															
Willow Slough	Newton		5360		1500	x x							51000		15200
Winamac	Pulaski	R-Wabash	4370	-									5300		6000
Elk Creek	Washington	Q-White	309		42								NA		2000
Kingsbury	La Porte			4522		15							NA		NA
Potoka	Pike	Q-White	4710		190	x x x x							100		500
Spring Valley	Orange	Q-White	1250		142								NA		1000
State Forests:															
Salamonie River	Wabash	R-Wabash	621		11	x x x							5100		33400
Frances Slocum	Miami	R-Wabash	1087		10	x x x							11600		10200
Selmer	Jennings	Q-White	350	-		x							1200		1500
Jackson	Jackson	Q-White	13813		130	x x x x							5100		14600
Yellowwood	Brown	Q-White	21600		200	x x x							9200		21200
Morgan-Monroe	Monroe	Q-White	22352		50	x x x							6100		16800
Owen-Putnam	Owen	Q-White	6124	-									500		1500
Green-Sullivan	Sullivan	R-Wabash	5130		160	x x x							6200		17200
Martin	Martin	Q-White	3541		10								4100		11400
Clark	Clark	O-Evansville	20482		80	x x x x							9300		21200
Harrison-Crawford	Harrison	O-Evansville	20642		15	x x x							15100		47400
Ferdinand	Dubois	Q-White	7378		30	x x x x							9700		32400
Pike	Pike	Q-White	2630	-		x x							6000		10500
MAJOR LOCAL															
Sullivan County Park	Sullivan	R-Wabash	1400		420								NA		NA
Wolf Lake	Lake			408		300 x x x x							3300		NA
Prairie Park	Delaware	Q-White	2333		420	x x x							NA		NA
Elk Creek Conservation District:	Elk Creek*	Washington	Q-White	150		40					x	NA		NA	
Spring Valley Conservation District:	French Lick Creek*	Orange	Q-White	1380		142					x	NA		NA	

OHIO
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION				
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA										
FEDERAL																
Corps of Engineers:																
Berlin Reservoir	Portage			7250			12000	x	x	x	x				527400	52500
Delaware Reservoir	Delaware	I-Scioto	7703		1300		x	x					34100		470900	
Moquah Creek Reservoir	Trumbull	D-Beaver	11200		7300		x	x	x	x			554200		1050300	
Tom Jenks Reservoir	Athens	E-Upper Ohio	1733		664		x	x	x	x			649400		877100	
West Fork Mill Creek	Hamilton	K-Cincinnati	1280		180		x	x					1594000		1576700	
Reservoir																
National Park System:																
Perry's Victory and Internation Peace Memorial	Ottawa				21		-				x		9600		NA	
Mound City Group National Monument	Ross	I-Scioto	66		-		x			x	NA		NA		NA	
U.S. Fish and Wildlife Service:																
West Sister Island National Wildlife Refuge	Lucas				2		-			x		NA		NA		
U.S. Forest Service:																
Waite National Forest			110917		203		x	x	x	x			94940		107300	
Recreation Areas:																
Vesuvian	Lawrence	H-Huntington	743		143		x	x	x	x			15500		15500	
County Units:																
Athens	Athens	E-Upper Ohio	658		45		x	x					6700		5100	
Gallia	Gallia	H-Huntington	4457		6								3300		4100	
Hocking	Hocking	I-Scioto	1922		2		x						14200		17500	
Jackson	Jackson	H-Huntington	391		-								100		100	
Lawrence	Lawrence	H-Huntington	1664		6								29100		35500	
Monroe	Monroe	E-Upper Ohio	4015		-								1300		4100	
Morgan	Morgan	F-Muskingum	2179		-								1700		2000	
Perry	Perry	F-Muskingum	16409		-								12700		15300	
Scioto	Scioto	H-Huntington	4674		1								3300		4100	
Vinton	Vinton	H-Huntington	2012		-								1700		2000	
Washington	Washington	E-Upper Ohio	9787		2		x						7500		9200	
STATE																
State Parks and Recreation Areas:																
Findley State Park	Lorain			910		90	x	x	x	x			243000		264100	
Forked Run State Park	Meigs	H-Huntington	790		100		x	x	x	x			94300		129300	
Lake Hope State Park	Vinton	H-Huntington	1562		121		x	x	x	x	x		507500		515000	
Jefferson Lake State Park	Jefferson	E-Upper Ohio	960		30		x	x	x	x			219000		307400	
Lake Alma State Park	Vinton	H-Huntington	231		61		x	x	x	x			356400		331200	
Madison Lake State Park	Madison	I-Scioto	150		100		x	x	x	x			276400		210000	
Mount Gilead State Park	Morrow	I-Scioto	172		30		x	x	x	x			136600		135600	
Romneyer State Park	Scioto	H-Huntington	256		20		x	x	x	x			156700		149100	
Scioto Trail State Park	Ross	I-Scioto	148		30		x	x					350300		47600	
South Bass Island State Park	Ottawa			32		-	x	x	x	x			11900		21700	
Strauts Run State Park	Athens	F-Upper Ohio	353		160		x	x	x	x			16400		53700	
Lake White State Reserve	Pike	H-Huntington	66		30		x	x	x	x			60100		167000	
Van Buren Lake State Park	Hancock			136		60	x	x	x	x			146000		266300	
Tar Hollow State Park	Ross	I-Scioto	450		20		x	x	x	x			14100		46100	
A.W. Marion State Park	Champaign	I-Scioto	440		10		x	x	x	x			40700		207700	
Clear Fork State Park	Adairland	F-Muskingum	145		2		x	x	x	x			13700		137700	
Beech Oak State Park	Athens	F-Upper Ohio	210		100		x	x	x	x			171000		461200	
Buckeye Lake State Park	Fairfield	I-E-W	6000		1000		x	x	x	x			1710700		355000	
Bever Creek State Park	Columbus	I-Upper Ohio	2050		-		x	x	x	x			94000		127400	
Braxton Lake State Park	Putnam			196		100	x	x	x	x			90100		134700	
Crown Lake State Park	Clinton	I-E-W	1700		700		x	x	x	x			94100		66500	
Deer Creek State Park	Clinton	I-E-W	1000		400		x	x	x	x			90000		66000	

OHIO
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA									
State Parks and Recreation Areas: (con.)															
East Harbor State Park	Ottawa		1260		850	x x x x							1224700		1397700
John Bryan State Park	Greene	L-Miami	751	-	x x x								259500		364000
Hocking State Park	Hocking	I-Scioto	1155	-	x x								75600		125600
Hueston Woods State Park	Butler	L-Miami	3584		624	x x x x x							582200		818100
Independence Dam State Park	Defiance		55	-	x x								226400		203300
Indian Lake State Park	Logan	L-Miami	6344	5600	x x x x								1707000		158000
Kelley's Island State Park	Erie		412	-	x x								NA		NA
Kiser Lake State Park	Champaign	L-Miami	660	390	x x x x								442700		200700
Lake Lorain State Park	Shelby	L-Miami	1950	1650	x x x x								738800		915200
Nelson-Kennedy State Park	Portage		167	-	x								52300		107200
Pike Lake State Park	Pike	H-Huntington	500	10	x x x x x								52600		159200
Portage Lake State Park	Summit		2790	2150	x x x								NA		1442800
Fondren Lake State Park	Geauga		505	65	x x x								203600		52700
Rocky Fork State Park	Highland	I-Scioto	3574	2002	x x x x								1079900		1069100
St. Mary State Park	Auglaize		15536	10900	x x x x								465400		1121200
Stonehouse Creek State Park	Clermont	K-Cincinnati	1957	197	x x x x								756400		773600
Adams Lake State Reserve	Adams	K-Cincinnati	100	50	x x x								458000		47500
Bark Camp State Park	Belmont	E-Upper Ohio	1232	117	x x x								NA		6000
Blue Rock State Park	Muskingum	F-Muskingum	340	20	x x								42200		161200
Catawba State Park	Ottawa		7	-	x x								294000		265200
Big Creek State Reserve	Geauga		565	-									NA		NA
Pymatuning State Park	Ashtabula		4077	3580	x x x x x								799700		1304700
Crane Creek State Park	Lucas		650	-	x x								559000		12700
Headlands State Park	Lake		125	-	x x								461200		614000
State Forests:															
Wolf Run Area	Noble	F-Muskingum	932	-									NA		200
Brush Creek	Adams	K-Cincinnati	11634	-									740		600
Blue Rock	Muskingum	F-Muskingum	4572	-									11000		12500
Waterloo	Athens	E-Upper Ohio	477	-									400		500
Sunfish Creek	Monroe	E-Upper Ohio	638	-									NA		NA
Shane River	Meigs	H-Huntington	2409	-									400		400
Mohican Memorial	Ashland	F-Muskingum	4067	2									55000		55000
Yellow Creek	Columbiana	E-Upper Ohio	756	-									1100		1100
Maumee	Fulton		307	-									9000		11000
Hocking	Hocking	I-Scioto	4539	-									20000		25000
Richland Furnace	Jackson	H-Huntington	2343	-									200		200
Pike	Pike	H-Huntington	10565	-									2500		3000
Tar Hollow	Ross	I-Scioto	16126	-									3000		3500
Scioto Trail	Ross	I-Scioto	9151	-									3000		3500
Shawnee	Scioto	H-Huntington	57752	20									4000		15000
Zaleski	Vinton	H-Huntington	18201	-									20000		25000
Raccoon	Vinton	H-Huntington	5650	-									600		800
Dean	Lawrence	H-Huntington	1797	-									400		1000
Chapin	Lake		362	-									1000		1550
Gifford	Athens	E-Upper Ohio	320	-									NA		NA
State Fish and Wildlife Areas:															
Aquilla Lake	Geauga		170		130	x x x							5000		5000
Auburn Marsh	Geauga		431	-						x			2000		6000
Avondale	Muskingum	F-Muskingum	5465	35					x	NA			5000		
Basic Incorporated	Seneca		1253	-					x	NA			NA		2500
Beaver Creek	Williams		154	1	x			x		NA			NA		1300
Big Island	Marion	I-Scioto	1045	-					x				1000		1000
Bullvar Reservoir	Stark	F-Muskingum	(1405)	**					x	NA			1500		
Brush Creek	Jefferson	E-Upper Ohio	2448	2	x x					2000			5000		
Canal Fulton	Stark	F-Muskingum	50	40	x				x	NA			NA		
Clark Lake	Clark	L-Miami	289	100	x x			x	x	50200			50000		
Closure Lake	Perry	F-Muskingum	94	40	x x			x	x	1300			1500		

OHIO
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	1960		1963
	COUNTY	SUB-AREA	BASIN AREA	STUDY AREA	BASIN AREA	STUDY AREA							BASIN	STUDY AREA	BASIN
State Fish and Wildlife Areas:															
(con.)															
Coopers Hollow	Jackson	Huntington	940	4			x		x		x	5000		5000	
Cumberland	Adams	E-Muskingum	100	100				x				1500	NA		
Darke County Lake	Darke	E-Miami	200	-			x					NA		1000	
Dover	Tuscarawas	E-Muskingum	366	-								NA		NA	
Fallsville	Highland	I-Seviota	1212	10			x		x		x	3000		3300	
Grand River	Trumbull	E-Beaver	1200	10			x		x		x	4000		10000	
Grand Lake	Brown	E-Cincinnati	44	291			x	x	x			50000		101000	
Greenfield Dam	Fairfield	I-Seviota	70	4			x				x	NA		1400	
Hamden Orcas	Genesee			4			x					NA		200	
Hightstown	Lumbana	E-Upper Ohio	1681	18			x	x				NA		1500	
Hunting Lake	Hocking	Scioto	125	400			x	x	x			2000		3000	
Indiana Creek	Brown	E-Cincinnati	1641	70			x		x		x	2000		20000	
Jackson Lake - State Reserve	Jackson	E-Huntington	400	240			x	x	x			10000		10000	
Kauka	Jefferson	E-Upper Ohio	1000	-							x	NA		100	
Killdeer Flats	Scioto		5470	500			x								
Knox Lake	Knox	E-Muskingum	910	500			x			x		2000		18000	
Lake Park	Mahoning	E-Beaver	93	20			x			x		NA		1500	
Leavyville	Carroll	E-Muskingum	248	-			x					NA		NA	
Liberty	Jackson	Huntington	145	-			x					NA		NA	
Little Portage River	Ottawa			360										15000	5000
Medore Marsh	Ottawa		166	-								5000		5000	
Men	Jackson	Huntington	2523	-							x	500		500	
Metzger Marsh	Lucas			558			318		x			20000		7000	
Milton	Erie		294				1	x	x	x		1000		1000	
Rock	Canton	E-Muskingum	4572	-						x	x	2000		2000	
Monican River	Cuyahoga	E-Muskingum	370	-					x			2000		9000	
Morris Lake	Monroe	E-Upper Ohio	334	-							x	NA		NA	
New Lake	Ashland		530	-			x					600		1000	
Nimmiton Reservoir	Summit		2825				11					NA		500000	
Older	Hocking	I-Seviota	140	10			x		x			1200		1400	
Old Canal	Monroe	I-Seviota	10	10			x	x	x	x	x	NA		2000	
Orwell	Ashland		197				x	x		x		200		1000	
Oxbow Lake	Bellmore		410				50		x	x		1000		1000	
Pater Lake	Butler	I-Miami	190	-					x			100		100	
Pleasant Valley	Ross	I-Seviota	1403	-			x		x		x	100		100	
Powellson	Muskingum	E-Muskingum	2077	5				x	x	x		200		200	
Put-in-Bay Hatchery	Ottawa		311	-					x			NA		NA	
Red Haven	Greene		2211				300	x		x		70000		15000	
Rock Mill Dam	Parkfield	I-Seviota	46	10					x			NA		1500	
Rush Run	Perris	I-Miami	174	2			x	x	x	x		1000		1000	
Shreve Lake	Wayne	E-Wabash River	230	50			x	x	x			2000		4000	
Spencer Lake	Monroe		596				79	x	x	x		NA		4000	
Spring Valley	Greene	I-Lake	842	50			x	x	x	x		40000		50000	
St. Mary's Lake	Monroe		(790)	(540)				x	x	x		NA		NA	
Troutdale C. C.	Ottawa		259				70		x			NA		500	
Truquility	Allen	E-Cincinnati	4337	10			x		x			2000		4500	
Trimble	Athens	E-Upper Ohio	2040	10			x	x	x	x		1200		1000	
Tyson Lake	Jefferson	Huntington	674	204			x	x	x	x		3000		4500	
Urbana River Park	Clarendon	E-North	54	2					x			NA		1000	
Vet.	Washington	E-Upper Ohio	450	160			x		x			2000		3000	
Watervale	Athens	E-Upper Ohio	124	21			x	x	x			1000		1500	
Wellington	Greene		50						x			NA		2000	
Willard Marsh	Marion		1070	50					x			NA		1000	
Will Creek	Morgan	E-Muskingum	1510	100			x	x	x	x		5000		5000	
Winton	Canton	E-Muskingum	100	100			x	x	x	x		1000		1000	
Zephernick Lake	Clinton	E-Cincinnati	520				x		x	x		61000		65000	
Berlin Reservoir	Portage		NA	(814)	(1320)	x	x	x	x		100000		100000		

OHIO
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION				
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA											
MAJOR LOCAL																
Winton Woods County Park	Hamilton	K-Cincinnati	2012	153			X	X	X				1401600	1532100		
Hinsley Reservation	Medina		269	110	X	X	X	X					972000	144000		
Rock River Reservation	Cuyahoga		4653	320	X	X	X	X					6530000	6602100		
Mill Creek Park	Mahoning	O-Beaver	2303	200		X	X						1000000	1000000		
Washington Park	Lima		300	300	X	X							23000	24000		
Perry County Recreational Area	Perry	P-Muskingum	1400	50									NA	NA		
Englewood Dam Park	Montgomery	I-Miami	870	130	X	X	X						255000	NA		
Hoffman Dam Park	Greene	I-Miami	400	50	X	X							254000	NA		
Muskingum Conservancy District																
Ashwood Reservoir	Carroll	P-Muskingum	2050	1050	X	X	X	X	X				446000	144700		
Brown City Reservoir	Tuscarawas	P-Muskingum	65	40	X	X							5000	142400		
Bolivar Reservoir	Tuscarawas	P-Muskingum	340	**	X	X							20000	65200		
Charles Mills Reservoir	Richland	P-Muskingum	1650	1350	X	X	X	X					200000	504100		
Clemencing Reservoir	Harrison	P-Muskingum	6530	1100	X	X	X	X					104200	77200		
Dover Reservoir	Tuscarawas	P-Muskingum	4460	**	X	X							3000	14400		
Groveville Reservoir	Carroll	P-Muskingum	3607	1000	X	X	X	X	X				25000	144000		
Mohawk Reservoir	Canton	P-Muskingum	14024	**	X	X							15000	150000		
Minicanville Reservoir	Wayne	P-Muskingum	3774	**									450	7600		
Piedmont Reservoir	Belmont	P-Muskingum	2770	2720	X	X	X	X	X				75000	452600		
Pleasant Hill Reservoir	Ashland	P-Muskingum	1400	900	X	X	X	X	X				20000	65500		
Seneca Falls Reservoir	Noble	P-Muskingum	4610	350	X	X	X	X	X				643500			
Tappan Reservoir	Harrison	P-Muskingum	2850	230	X	X	X	X	X				20000	142000		
Willis Creek Reservoir	Muskingum	P-Muskingum	2023	(400)		X	X						25000	105000		
Trumbull County Metropolitan Park	Trumbull	O-Beaver	(12.4)	(7500)	X	X	X						200000	647400		

PENNSYLVANIA
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA									
FEDERAL															
Corps of Engineers															
East Branch Clarion Reservoir	Erik	A-Allegheny	1490	-	1050	-	x	x	x	x	x	x	129600	-	106400
Tionesta Reservoir	Forest	A-Allegheny	3250	-	500	-	x	x	x	x	x	x	662200	-	531200
Alvin R. Bush Reservoir	Clinton				1273	-	160	x	x	x	x	x	NA		40000
Youghiogheny River Reservoir	Somerset	A-Allegheny	4400	-	2750	-	x	x	x	x	x	x	584000	-	639900
Mahoning Creek Reservoir	Armstrong	A-Allegheny	2900	-	200	-	x	x	x	x	x	x	19500	-	24300
Crooked Creek Reservoir	Armstrong	A-Allegheny	2800	-	400	-	x	x	x	x	x	x	591500	-	307500
Canaugh River Reservoir	Indiana	A-Allegheny	6450	-	500	-	x	x	x	x	x	x	33000	-	103200
Loyalhanna Reservoir	Westmoreland	C-Pittsburgh	3600	-	250	-	x	x	x	x	x	x	110100	-	112100
National Park Service															
Fort Necessity Battlefield	Payette	B-Monongahela	330	-	-	-	x	x	x	x	x	x	157000	-	201100
U.S. Fish and Wildlife Service															
Erie National Wildlife Refuge	Crawford	A-Allegheny	1096	-	100	-	x	x	x	x	x	x	NA	-	4100
U.S. Forest Service															
Allegheny National Forest (summary)		A-Allegheny	471081	-	677	-	x	x	x	x	x	x	1197000	-	1721000
Recreation Areas															
Maple Run	Erik	A-Allegheny	68	-	-	-	-	x	-	-	x	x	8000	-	8000
Corduroy	Erik	A-Allegheny	65	-	-	-	-	x	-	-	x	x	2000	-	4000
Pipe Bridge	Erik	A-Allegheny	17	-	-	-	-	x	-	-	x	x	2000	-	3000
Twin Lakes	Erik	A-Allegheny	24	-	7	-	x	x	x	x	x	x	43000	-	50000
Bear Creek	Erik	A-Allegheny	-	-	-	-	x	x	-	-	x	x	NA	-	13000
Corduroy	Erik	A-Allegheny	54	-	-	-	-	x	-	-	x	x	2300	-	2600
Loleta	Erik	A-Allegheny	40	-	1	-	x	x	x	x	x	x	41600	-	69000
Wagner Run	Erik	A-Allegheny	26	-	-	-	x	x	-	-	x	x	2300	-	3200
Diamond's Corners	Forest	A-Allegheny	65	-	-	-	-	-	-	-	x	x	2300	-	2800
Seldom Seen	Forest	A-Allegheny	164	-	-	-	x	x	x	x	x	x	5700	-	12700
Greely Farm	Forest	A-Allegheny	45	-	-	-	x	x	-	-	x	x	2300	-	2600
Camp Nine	Forest	A-Allegheny	96	-	-	-	x	x	x	x	x	x	5700	-	6400
Kelley Pines	Forest	A-Allegheny	11	-	-	-	x	x	x	x	x	x	4300	-	12100
Watson Run	Forest	A-Allegheny	117	-	-	-	-	x	-	-	x	x	3400	-	4300
Angier	Forest	A-Allegheny	4	-	-	-	x	-	-	-	x	x	NA	-	300
Blue Jay	Forest	A-Allegheny	6	-	-	-	x	-	-	-	x	x	NA	-	100
Hill Farm	Forest	A-Allegheny	3	-	-	-	x	-	-	-	x	x	NA	-	100
Porter Farm Spring	Forest	A-Allegheny	3	-	-	-	x	-	-	-	x	x	NA	-	100
Porter Farm	Forest	A-Allegheny	7	-	-	-	-	x	-	-	x	x	2300	-	2800
Glasser Run	Forest	A-Allegheny	105	-	-	-	x	x	x	x	x	x	29700	-	46000
H-O-Cian Farm	McKean	A-Allegheny	36	-	-	-	-	x	-	-	x	x	4000	-	4000
Camp Olimpearl	McKean	A-Allegheny	6	-	-	-	-	x	-	-	x	x	500	-	500
Camp Cornplanter	McKean	A-Allegheny	46	-	-	-	-	x	x	x	x	x	1200	-	1400
Camp Run	McKean	A-Allegheny	40	-	-	-	-	-	-	-	x	x	2700	-	2900
Red Bridge	McKean	A-Allegheny	45	-	-	-	-	-	-	-	x	x	2100	-	2500
Lewis Run	McKean	A-Allegheny	4	-	-	-	-	x	-	-	x	x	25000	-	30000
Kennedy Springs	McKean	A-Allegheny	26	-	-	-	x	x	-	-	x	x	10500	-	17000
Jakes Rocks	Warren	A-Allegheny	31	-	-	-	x	-	-	-	x	x	NA	-	10200
Allegheny Picnic	Warren	A-Allegheny	19	-	-	-	x	x	-	-	x	x	40200	-	31100
Buckskins	Warren	A-Allegheny	37	-	-	-	x	x	x	-	x	x	3400	-	4200
Hearn's Content	Warren	A-Allegheny	36	-	-	-	x	x	-	-	x	x	27600	-	41000
Minister Creek	Forest	A-Allegheny	1	-	-	-	x	x	-	-	x	x	3200	-	7300
Morrison Run	Warren	A-Allegheny	4	-	-	-	x	-	-	-	x	x	31100	-	39200
Samueline Spruce	Warren	A-Allegheny	10	-	-	-	x	-	-	-	x	x	22200	-	16500
Camp R. Riselli	Warren	A-Allegheny	65	-	-	-	x	x	x	x	x	x	4600	-	4900
County Units															
Erik County	Erik	A-Allegheny	113364	263	-	-	x	x	x	x	x	x	143500	-	184100
Forest County	Forest	A-Allegheny	110520	164	-	-	x	x	x	x	x	x	104200	-	155900
McKean County	McKean	A-Allegheny	12516	151	-	-	x	x	x	x	x	x	212100	-	260100
Warren County	Warren	A-Allegheny	117977	111	-	-	x	x	x	x	x	x	315300	-	503300

PENNSYLVANIA
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES						VISITATION				
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA	
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA											
STATE																	
Division of State Parks:																	
Kooser	Somerset	A-Allegheny	375	-	4	-	x	x	x	x	x	x	167200		205100		
Laurel Mountain	Westmoreland	C-Pittsburgh	5	-	-	-						x	NA		36000		
Linn Run	Westmoreland	C-Pittsburgh	1500	-	-	-	x			x	x	x	70000		113000		
Keystone	Westmoreland	C-Pittsburgh	407	-	7	-	x	x	x	x	x	x	137500		257500		
Crooked Creek	Armstrong	A-Allegheny	2450	-	350	-	x	x	x	x	x	x	836900		294500		
Raccoon Creek	Beaver	C-Pittsburgh	723	-	101	-	x	x	x	x	x	x	504000		566900		
Laurel Hill	Somerset	A-Allegheny	4169	-	66	-	x	x	x	x	x	x	655100		343800		
McConnells Mill	Lawrence	D-Beaver	1924	-	25	-	x					x	17200		106000		
Pymatuning	Crawford	A-Allegheny	20040	-	12000	-	x	x	x	x	x	x	1586000		2664600		
Bendigo	Elk	A-Allegheny	124	-	-	-	x					x	94000		70300		
Chairman Dam	Warren	A-Allegheny	503	-	66	-	x	x	x	x	x	x	177400		348700		
Cook Forest	Clarion	A-Allegheny	722	-	-	-	x	x	x	x	x	x	617700		210500		
Clear Creek	Jefferson	A-Allegheny	1123	-	1	-	x	x	x	x	x	x	203400		245900		
S. B. Elliott	Clearfield			-	720	-	x			x	x			46000		43400	
Parker Dam	Clearfield			-	525	-	20	x	x	x	x	x		103000		136100	
Sinnemahoning	Cameron			-	160	-	140	x	x	x	x	x		31100		23000	
Silverville	Potter			-	1390	-	-	x	x	x	x	x		116500		26500	
Ravensburg	Clinton			-	423	-	3	x	x	x	x	x		91400		29900	
Bucktail	Clinton			-	23013	-	-	x				x		NA		NA	
Hiner Run	Clinton			-	17	-	5	x		x	x	x		54600		63400	
Kettle Creek	Clinton			-	1200	-	190	x	x	x	x	x		49100		88400	
Joe Bill	Potter			-	67	-	2	x	x	x	x	x		49100		51400	
Lyman Run	Potter			-	600	-	40	x	x	x	x	x		40300		107800	
Denton Hill	Potter			-	500	-	-	x		x	x	x		20000		30700	
Presque Isle	Erie			-	404	-	16	x	x	x	x	x		3025100		3257700	
Black Moshannon	Centre			-	2210	-	250	x	x	x	x	x		316000		386200	
Blue Knob	Bedford			-	5330	-	-	x	x	x	x	x		190000		93500	
Tough Creek	Huntingdon			-	500	-	15	x	x	x	x	x		59500		94400	
Warrior's Path	Bedford			-	29	-	-	x	x	x	x	x		NA		NA	
Shawnee	Bedford			-	340	-	451	x	x	x	x	x		1541000		795000	
Pie Valley	Centre			-	760	-	25	x	x	x	x	x		95100		196000	
Whipple Dam	Huntingdon			-	254	-	21	x	x	x	x	x		200000		141100	
Greenwood Furnace	Huntingdon			-	302	-	5	x	x	x	x	x		175300		93100	
Cowan Gap	Fulton			-	1348	-	42	x	x	x	x	x		279300		432100	
Division of State Forests:																	
Forbes	Somerset	A-Allegheny	46421	-	-	-	x			x	x	x	70500		75600		
Gallitzin	Cambria	A-Allegheny	1593	-	-	-	x			x	x	x	3000		4000		
Mount Davis	Somerset	A-Allegheny	100	-	-	-	x			x	x	x	14200		22100		
Elk	Elk	A-Allegheny	154697	-	-	-	x	x	x	x	x	x	102000		112500		
Corn Planter	Forest	A-Allegheny	1239	-	-	-						x	3000		4000		
Kittanning	Jefferson	A-Allegheny	9071	-	-	-	x			x	x	x	30500		35600		
Black Moshannon	Centre			-	15533	-	-	x	x	x	x	x		104000		114500	
Susquehannock	Potter			-	29367	-	-	x	x	x	x	x		104000		114500	
Sprout	Clinton			-	236475	-	-	x	x	x	x	x		150000		175000	
Bald Eagle	Centre			-	175394	-	-	x	x	x	x	x		100900		104200	
Bear Meadows	Centre			-	553	-	-	x		x	x	x		2900		4000	
Detweller Run	Huntingdon			-	200	-	-			x	x	x		400		600	
Alan Seeger	Huntingdon			-	25	-	-	x		x	x	x		11000		15000	
Rotrock	Huntingdon			-	7426	-	-	x	x	x	x	x		111000		116000	
Buchanan	Fulton			-	6955	-	-	x	x	x	x	x		55000		66000	
State Fish Commission																	
Recreation Areas																	
Dunbar Dam	Cambria	A-Allegheny	60	-	20	-	x		x	x	x	x	4600		5400		
Lake Somerset	Somerset	A-Allegheny	469	-	251	-	x		x	x	x	x	9600		12700		
Virgin Run Lake	Fayette	B-Monongahela	131	-	35	-	x		x	x	x	x	NA		3500		
Grade Run Lake	Butler	D-Beaver	145	-	60	-	x		x	x	x	x	7700		8100		
Dutch Fork Lake	Washington	C-Pittsburgh	519	-	90	-	x		x	x	x	x	NA		7700		

PENNSYLVANIA RECREATION INVENTORY

**NEW YORK
RECREATION INVENTORY**

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES				VISITATION				
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	1960	1960	
	COUNTY	SUB - AREA	BASIN	STUDY AREA	BASIN	STUDY AREA							BASIN	STUDY AREA	BASIN
<u>STATE</u>															
<u>State Parks:</u>															
Buckhorn Island	Erie				897		-			x		x	84200	112000	
Lake Erie	Chautauqua	A-Allegheny	356		114		x	x	x	x	x	x	57000	88000	
Evangola	Erie				701		-	x	x	x	x	x	534000	113000	
Niagara Reservation	Niagara				435		-	x			x		2534000	4346700	
Devil's Hole	Niagara				42		-	x			x		61100	275400	
Whirlpool	Niagara				109		-	x			x		542800	546500	
Beaver Island	Erie				918		-	x		x	x		742500	630000	
Cuba Reservation	Allegany				675		560	x	x	x	x		62300	67000	
Allegany	Cattaraugus	A-Allegheny	65000		120		x	x	x	x	x	x	621000	62500	
<u>State Forests:</u>															
Chautauqua Reforestation															
Area	Chautauqua	A-Allegheny	16700		30		x	x	x	x	x	NA	NA	NA	
Cattaraugus Reforestation															
Area	Cattaraugus	A-Allegheny	32935		20		x	x	x	x	x	NA	NA	NA	
Allegany Reforestation Area															
Area	Allegany		44600		55		x	x	x	x	x	NA	NA	NA	
<u>State Fish and Game Areas:</u>															
Carlton Hill Multiple-Use															
Area	Wyoming		1752		-		x			x		NA	NA	NA	
Canadaway Creek Game Management Area															
Management Area	Chautauqua	A-Allegheny	2180		5		x	x		x	NA	NA	NA	NA	
Hanging Bog Game Management Area															
Area	Allegany		4341		5		x	x		x	NA	NA	NA	NA	

WEST VIRGINIA
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION				
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LODGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA										
FEDERAL																
Corps of Engineers:																
Sutton Reservoir	Braxton	G-Kanawha	10365		1520		x x x	x x	x x	x x	x x	x x	NA		NA	847000
Tygart Reservoir	Taylor	B-Monongahela	4670		1700		x x x	x x	x x	x x	x x	x x	474500		NA	464900
Gallipolis Lock and Dam	Mason	H-Huntington	10382		10290				x x	x x	x x	x x	NA		NA	160000
Bluestone Reservoir	Summers	G-Kanawha	21900		1970		x x x	x x x	x x x	x x x	x x x	x x x	304000		NA	539000
U.S. Forest Service:																
George Washington National Forest	Pendleton, et al				99385		x x x	x x x	x x x	x x x	x x x	x x x	148200		NA	284000
Monongahela National Forest	Randolph, et al	B-Monongahela G-Kanawha	305873		2963		x x x	x x x	x x x	x x x	x x x	x x x	992000		NA	1925000
STATE																
State Parks:																
Tygart Lake	Taylor	B-Monongahela	(2505)		(1700)		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	(208910)
Babcock	Fayette	G-Kanawha	3227		-		x x x	x x x	x x x	x x x	x x x	x x x	40000		NA	64000
Tomlinson Run	Hancock	E-Upper Ohio	1400		28		x x x	x x x	x x x	x x x	x x x	x x x	249000		NA	253000
Mont Chateau	Monongalia	B-Monongahela	42		-		x x x	x x x	x x x	x x x	x x x	x x x	78700		NA	98800
Cathedral	Preston	B-Monongahela	126		26		x x x	x x x	x x x	x x x	x x x	x x x	13500		NA	22500
Blackwater Falls	Tucker	B-Monongahela	1679		-		x x x	x x x	x x x	x x x	x x x	x x x	282600		NA	31500
Watters Smith	Harrison	B-Monongahela	278		-		x x x	x x x	x x x	x x x	x x x	x x x	14100		NA	16500
Audra	Barbour	B-Monongahela	355		5		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	6000
North Bend	Ritchie	G-Kanawha	1405		38		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	73300
Hawk's Nest	Fayette	G-Kanawha	94		-		x x x	x x x	x x x	x x x	x x x	x x x	402200		NA	341300
Cedar Creek	Gilmer	G-Kanawha	2034		9		x x x	x x x	x x x	x x x	x x x	x x x	37500		NA	NA
Holly River	Webster	G-Kanawha	7592		10		x x x	x x x	x x x	x x x	x x x	x x x	40400		NA	63400
Carnifex Ferry	Nicholas	G-Kanawha	156		-		x x x	x x x	x x x	x x x	x x x	x x x	26800		NA	37100
Droop Mountain	Pocahontas	G-Kanawha	284		-		x x x	x x x	x x x	x x x	x x x	x x x	18400		NA	36000
Watoga	Pocahontas	G-Kanawha	10057		11		x x x	x x x	x x x	x x x	x x x	x x x	43400		NA	71100
Grandview	Raleigh	G-Kanawha	878		-		x x x	x x x	x x x	x x x	x x x	x x x	99900		NA	192900
Pinnacle Rock	Mercer	G-Kanawha	152		-		x x x	x x x	x x x	x x x	x x x	x x x	52600		NA	56800
Bluestone	Summers	G-Kanawha	1346		(1970)		x x x	x x x	x x x	x x x	x x x	x x x	(304000)		NA	(539000)
State Forests:																
Cabwaylingo	Wayne	H-Huntington	8036		10		x x x	x x x	x x x	x x x	x x x	x x x	53100		NA	62300
Greenbrier	Greenbrier	G-Kanawha	5001		-		x x x	x x x	x x x	x x x	x x x	x x x	61200		NA	45600
Kumbrabow	Randolph	B-Monongahela	9431		25		x x x	x x x	x x x	x x x	x x x	x x x	46200		NA	29100
Seneca	Pocahontas	G-Kanawha	11503		5		x x x	x x x	x x x	x x x	x x x	x x x	8600		NA	18100
Calvin Price	Pocahontas	G-Kanawha	9482		-		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	1200
Camp Creek	Mercer	G-Kanawha	5897		1		x x x	x x x	x x x	x x x	x x x	x x x	28900		NA	41200
Coopers Rock	Preston	B-Monongahela	13043		5		x x x	x x x	x x x	x x x	x x x	x x x	208100		NA	210800
Kanawha	Kanawha	G-Kanawha	6597		2		x x x	x x x	x x x	x x x	x x x	x x x	110900		NA	175200
Panther Creek	McDowell	J-Guyandot	7810		-		x x x	x x x	x x x	x x x	x x x	x x x	6200		NA	15000
State Fish & Game Areas:																
Bluestone (Bluestone Res.)	Summers	G-Kanawha	16823		(1500)		x x x	x x x	x x x	x x x	x x x	x x x	(170000)		NA	(200000)
Elk River (Sutton Res.)	Braxton	G-Kanawha	16000		(1200)		x x x	x x x	x x x	x x x	x x x	x x x	(3000)		NA	(7000)
Bear Rocks	Ohio	E-Upper Ohio	163		16		x x x	x x x	x x x	x x x	x x x	x x x	1200		NA	3100
Teter Creek Lake	Barbour	B-Monongahela	112		34		x x x	x x x	x x x	x x x	x x x	x x x	2100		NA	6500
Pleasant Creek	Barbour	B-Monongahela	1000		140		x x x	x x x	x x x	x x x	x x x	x x x	29600		NA	47900
Horner	Lewis	B-Monongahela	188		1		x x x	x x x	x x x	x x x	x x x	x x x	500		NA	1200
McClintic	Mason	H-Huntington	2451		160		x x x	x x x	x x x	x x x	x x x	x x x	10000		NA	20000
Chief Cornstalk	Mason	H-Huntington	10052		5		x x x	x x x	x x x	x x x	x x x	x x x	2400		NA	26200
Plum Orchard Lake	Fayette	G-Kanawha	2955		202		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	25400
Laurel Creek	Mingo	J-Guyandot	12299		31		x x x	x x x	x x x	x x x	x x x	x x x	25500		NA	NA
MAJOR LOCAL																
Oglebay Park	Ohio	E-Upper Ohio	1050		-		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	NA
Coonskin Park	Kanawha	G-Kanawha	1000		-		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	NA
Camp Mad Anthony Wayne	Wayne	H-Huntington	211		-		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	NA
Little Beaver	Raleigh	G-Kanawha	437		50		x x x	x x x	x x x	x x x	x x x	x x x	NA		NA	NA

MARYLAND RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES				VISITATION					
			TOTAL		WATER						1960		1963			
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA	PICNICKING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
STATE																
State Parks and Recreation Areas:																
Swallow Falls	Garrett	B-Monongahela	150	9			x	x	x	x	x	110000		128000		
Deep Creek Lake	Garrett	B-Monongahela	1823	-			x	x	x	x	x	48700		129800		
Big Run	Garrett	B-Monongahela	300	-			x	x	x		x	33700		41400		
New Germany	Garrett	B-Monongahela	238		13		x	x	x	x	x	112000		138000		
Dans Mountain	Allegany			467		1	x	x			x		15700		25200	
Rocky Gap	Allegany			398		-							NA		NA	
Castleman Bridge	Garrett	B-Monongahela	5	-			x				x	NA		NA		NA
State Forests:																
Swallow Falls	Garrett	B-Monongahela	7500	-			x	x	x	x	229700		NA		NA	
Savage River	Garrett	B-Monongahela	52710		10		x	x	x	x	180600		NA		NA	
Green Ridge	Allegany			25630		-	x			x		71500		NA		NA
Potomac	Garrett	B-Monongahela	12400	-			x	x		x		5400		NA		NA
State Game and Inland Fisheries Areas:																
Dans Mountain	Allegany			7609		-		x		x		NA		NA		NA
Warrior Mountain	Allegany			2226		-				x		NA		NA		NA
White Sulphur Pond	Allegany			3		3	x			x		NA		NA		NA
Belle Grove Game Park	Allegany			358		-				x		NA		NA		NA
Bill Meyer Wildlife Refuge	Allegany			708		-				x		NA		NA		NA
Mt. Nebo Forest	Garrett	B-Monongahela	1790		-					x	NA		NA		NA	

VIRGINIA RECREATION INVENTORY

**NORTH CAROLINA
RECREATION INVENTORY**

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES	VISITATION							
			TOTAL		WATER			1960				1963			
COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA	PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
FEDERAL															
National Park Service:												e	e		
Blue Ridge Parkway	Alleghany-Ashe-Watauga	G-Kanawha	85mi.	-								1765400	2313700		
Visitor-Use Areas:															
Cumberland Knob	Alleghany					x				x					
Doughton Park	Alleghany					x	x			x	x				
Cherry Hill	Ashe									x					
Moses H. Cone	Watauga									x					
Julian Price	Watauga					x	x			x					
U.S. Forest Service:															
Cherokee National Forest	Ashe	G-Kanawha	327	-						x	NA		NA		
Plaugh National Forest	Watauga	G-Kanawha	NA	NA						x	NA		NA		
STATE															
State Parks:															
Mt. Jefferson	Ashe	G-Kanawha	470	-		x				x	7500		26900		

KENTUCKY
RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION				
			TOTAL		WATER							1960		1963		
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA	PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
FEDERAL																
Corps of Engineers:																
Buckhorn Reservoir	Perry	M-Licking	5000		1250		x	x	x	x	x	x	600		786000	
Lake Cumberland (Wolf Creek Dam)	Russell-Clinton	S-Cumberland	91972		50250		x	x	x	x	x	x	2955100		3114500	
Dewey Reservoir	Floyd	J-Guyandot	13000		1100		x	x	x	x	x	x	225100		764700	
National Park Service:																
Mammoth Cave National Park	Edmonson	P-Green	51254		660		x	x	x	x	x	x	566200		745800	
Cumberland Gap National Historical Park	Bell	S-Cumberland	10674		-		x	x	x	x	x	x	165400		167100	
Abraham Lincoln Birthplace National Historical Site	Larue	P-Green	117		-						x		353700		294400	
U.S. Fish & Wildlife Service:																
Kentucky Woodland National Wildlife Refuge	Lyndon-Trigg	S-Cumberland	65754		-		x	x	x	x	x	NA	NA			
U.S. Forest Service:																
Cumberland National Forest	Clark (Hqrs.)	M-Licking S-Cumberland	460004		11231		x	x	x	x	x	x	532000		500000	
Jefferson National Forest	Pike	J-Guyandot	116		-		x				x		500		500	
STATE																
State Parks:																
Pine Mountain	Bell	S-Cumberland	2100		100		x	x	x	x	x	x	250000		207100	
Big Bone Lick	Boone	K-Cincinnati	163		-		x				x		9500		41100	
General Butler	Carroll	N-Louisville	900		40		x	x	x	x	x	x	33000		34100	
Carter Caves	Carter	J-Guyandot	1020		40		x	x	x	x	x	x	154000		461700	
Pennyville Forest	Christian	S-Cumberland	14060		60		x	x	x	x	x	x	123000		135000	
Jenny Wiley	Floyd	J-Guyandot	(43000)		(1100)		x	x	x	x	x	x	67200		769000	
Greenbow Lake	Greenup	H-Huntington	3610		300		x	x	x	x	x	x	236500		294000	
Audubon	Henderson	O-Evansville	590		20		x	x	x	x	x	x	240000		248200	
Levi Jackson Wilderness	Laurel	S-Cumberland	740		-		x	x	x	x	x	x	235000		269000	
My Old Kentucky Home	Nelson	M-Licking	240		-		x				x		142000		147900	
Natural Bridge	Powell	M-Licking	1390		60		x	x	x	x	x	x	133000		227000	
Lake Cumberland	Russell	S-Cumberland	(3800)		(60250)		x	x	x	x	x	x	176000		186000	
Cumberland Falls	Whitley	S-Cumberland	1120		20		x	x	x	x	x	x	500000		500000	
Breaks Interstate Commission:																
Breaks Interstate Park	Pike	J-Guyandot	2022		12		x	x	x	x	x	NA	NA			
State Forests:																
Olympia	Bath	M-Licking	789		-					x	NA	NA	NA			
Kentucky Ridge	Bell	S-Cumberland	11500		-					x	NA	NA	NA			
Knots	Bullitt	N-Louisville	4000		-				x	NA	NA	NA	NA			
Tygart	Carter	J-Guyandot	300		-				x	NA	NA	NA	NA			
Kentenics	Harlan	S-Cumberland	3620		-				x	NA	NA	NA	NA			
Dewey Lake	Pike	J-Guyandot	1000		-				x	NA	NA	NA	NA			
Pennyville	Christian	S-Cumberland	15200		-				x	NA	NA	NA	NA			
State Fish and Wildlife Areas:																
Beaver Creek Lake	Anderson	M-Licking	160		160		x	x	x	x	x	NA	NA	NA		
Jones-Kennee Game Management Area	Caldwell	O-Evansville	1650		-		x			x		100	NA	NA		
Lake Beshear	Caldwell	O-Evansville	150		50		x	x	x	x	x	NA	NA	NA		
Carpenter Lake	Davies	O-Evansville	6		6		x	x	x	x	x	NA	NA	NA		
Old Kingfisher - New Kingfisher	Davies	O-Evansville	16		16		x	x	x	x	x	NA	NA	NA		
Robinson Forest	Breckinridge	M-Licking	10000		-		x	x	x	x	x	x	NA	NA	NA	
Elliott County Game Area	Elliott	J-Guyandot	20		6		x			x	x	NA	NA	NA		
Franklin County Game Area	Franklin	M-Licking	150		6		x			x		25000		30000		

KENTUCKY RECREATION INVENTORY

TENNESSEE RECREATION INVENTORY

EXISTING AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	% BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA									
FEDERAL															
Corps of Engineers:															
Center Hill Reservoir	DeKalb	S-Cumberland	36552	1220	x	x	x	x	x	x	1375100	1016000			
Cheatham Reservoir	Cheatham-Dickson	S-Cumberland	10190	7400	x	x	x	x	x	x	661300	756700			
Dale Hollow Reservoir	Clay	S-Cumberland	52395	27700	x	x	x	x	x	x	101900	1093100			
Old Hickory Reservoir	Davidson-Sumner	S-Cumberland	32172	22500	x	x	x	x	x	x	3723900	4766300			
National Park Service:															
Natchez Trace National Parkway	Williamson	S-Cumberland	5512	-	x				x	NA		NA			
Pt. Doneilson National Military Park & Cemetery	Stewart	S-Cumberland	196	-					x	222700		400400			
Stone River National Battlefield & Cemetery	Rutherford	S-Cumberland	324	-					x	36100		33100			
Tennessee Valley Authority:															
Great Falls Lake	Warren-White	S-Cumberland	2270	2270	x	x	x	x	x	x	50000	60000			
STATE															
State Parks:															
Cedars of Lebanon	Wilson	S-Cumberland	(500)	-	x	x	x	x	x	x	95400	126300			
Fall Creek Falls	Van Buren	S-Cumberland	16000	10	x	x	x	x	x	x	109100	203700			
Standing Stone	Overton	S-Cumberland	(9345)	(50)	x	x	x	x	x	x	61200	136100			
Montgomery Bell	Dickson	S-Cumberland	3871	90	x	x	x	x	x	x	356400	799600			
Pickett	Pickett	S-Cumberland	1200	12	x	x	x	x	x	x	42500	NA			
State Forests:															
Stewart	Stewart	S-Cumberland	4000	-					x	100		100			
Scott	Scott	S-Cumberland	3182	-					x	100		100			
Cedars of Lebanon	Wilson	S-Cumberland	7652	-						NA		NA			
Standing Stone	Overton	S-Cumberland	9345	60						NA		NA			
State Fish and Game Areas:															
Cheatham Game Management Area	Cheatham	S-Cumberland	(2722)	(231)	x	x	x	x	x	NA		0000			
Old Hickory Game Management Area	Wilson	S-Cumberland	(3520)	(1231)						NA		6000			
Cheatham Wildlife Area	Cheatham	S-Cumberland	22310	-					x	4600		2500			
Burgess Falls State Lake	Putnam	S-Cumberland	540	400	x	x	x	x	x	5300		4500			
Marrowbone State Lake	Davidson	S-Cumberland	160	60	x	x	x	x	x	400		5400			

APPENDIX II

INVENTORY
POTENTIAL OUTDOOR RECREATION FACILITIES
OHIO RIVER BASIN

ILLINOIS
RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE		GENERAL RECREATION ACTIVITIES		VISITATION					
			TOTAL	WATER			Most Recent Available	Projected				
POTENTIAL AREA	COUNTY	SUB-AREA	BASIN STUDY AREA	BASIN STUDY AREA	PICKING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN STUDY AREA	BASIN STUDY AREA
FEDERAL												
Corps of Engineers:												
Oakley Reservoir	Macon		NA	2400							-	-
Carlyle Reservoir	Clinton		NA	6500							-	-
Shelbyville Reservoir	Shelby		NA	3000							-	-
Rend Lake Reservoir	Franklin		NA	4800							-	-
Lincoln Reservoir	Coles	R-Wabash	NA	6760	x x x x	x	-				1100000	
Louisville Reservoir	Clay	R-Wabash	NA	NA							-	-
Heim Reservoir	Marion	R-Wabash	NA	NA							-	-
U.S. Forest Service:												
Shawnee National Forest			37850	18800	37	50	x x x x	x	-	-	-	-
County Units												
Hancock	Hardin	O-Evansville	8750	7							-	-
Jackson	Jackson		5100	50							-	-
Johnson	Johnson	O-Evansville	10000	20							-	-
Massac	Massac	O-Evansville	500	-							-	-
Pope	Pope	O-Evansville	12800	13							-	-
Saline	Saline	O-Evansville	3200	-							-	-
Union	Union		9500	-							-	x
Williamson	Williamson		2700	-							-	-
Alexander	Alexander		1000	-							-	-
Gallatin	Gallatin	O-Evansville	2600	-							-	-
STATE												
State Parks:											-	-
Pope-Massac Lake	Pope	O-Evansville	418	-							-	-
Cave in Rock	Hardin	O-Evansville	160	-	x x						-	-
Dixon Springs	Pope	O-Evansville	400	-	x x						-	-
Fern Clyffe	Johnson	O-Evansville	800	-	x x						-	-
Fort Massac	Massac	O-Evansville	4000	-	x x x						-	-
Lincoln Trail	Clark	R-Wabash	500	-	x x x						-	-
Kickapoo	Vermilion	R-Wabash	1200	-	x x						-	-
Red Hills	Lawrence	R-Wabash	500	-	x	x					-	-
Fox Ridge	Coles	R-Wabash	940	-	x x						-	-
Spring Lake	Tazewell		500	-	x x x x						-	-
Starved Rock	La Salle		350	-	x x						-	-
Stephen A. Forbes Lake	Marion		3744	585	x x x x x x						-	-
Weldon Springs	Dewitt		500	-	x x x x x						-	-
Kincaid Reservoir	Jackson		6500	-	x x x x x						-	-
Chain-O-Lakes	Lake		24860	1250	x x x x x x x						-	-
Giant City	Jackson		2000	-	x x						-	-
Illinois Beach	Lake		2187	-	x x x x						-	-
Illinois	La Salle		500	-	x x x						-	-
Buffalo Rock	La Salle		200	-	x x						-	-
Kankakee River	Kankakee		1041	-	x x x x x x x						-	-
Ramsey Lake	Fayette		1000	-	x x x x x						-	-
Lincoln Trail Homestead	Macon		30	-	x x x		x				-	-
Des Plaines Rec. Area	Will		18000	-	x x x x x x						-	-
Lake Murphysboro	Jackson		400	-	x x x x x						-	-
State Forests:												
Shelby County	Shelby		455	-	x x						-	-
Union	Union		494	-	x x						-	-
State Conservation Areas:												
Pope-Massac	Pope	O-Evansville	100	-	x x x						-	-
Saline County	Saline	O-Evansville	1600	-	x x						-	-
Crawford County	Crawford	R-Wabash	1000	-	x x x						-	-
Hamilton County	Hamilton	R-Wabash	600	-	x x						-	-
Jasper County	Jasper	R-Wabash	1000	-	x x x						-	-

ILLINOIS RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA									
State Conservation Areas:															
(con.)															
Beani Woods	Wabash	R-Wabash	626	-			x x						-	-	-
Wayne County	Wayne	R-Wabash	40	-			x x						-	-	-
Du Page County	DuPage			170		50							-	-	-
Horseshoe Lake	Alexander			360		-	x x						-	-	-
Iroquois County	Iroquois			2500		-	x x x						-	-	-
McLean County	McLean			1000		-	x x						-	-	-
Washington County	Washington			1000		-	x x						-	-	-
Wolf Lake	Cook			43		-	x	x x	x				-	-	-
Woodford County	Woodford			1000		-	x x x						-	-	-
Union County	Union			5000		-	x x						-	-	-
DuPage County	Du Page			4000		200	x x x	x					-	-	-
Kane County	Kane			18600		600	x x x	x					-	-	-
Sugar Creek	Logan			4300		-	x x x	x x					-	-	-
Will County	Will			26600		600	x x x	x					-	-	-
MAJOR LOCAL															
Champaign Co. Forest Preserve	Champaign	R-Wabash	680	40			x x						-	-	-
Gander Mountain Forest Preserve	Lake			260		-	x	x					-	-	-
Van Patten Woods Forest Preserve	Lake			173		-	x		x				-	-	-
Winthrop Harbor Forest Preserve	Lake			80		-	x		x				-	-	-
Spring Lake Forest Preserve	Cook			543		-	x x						-	-	-
Palatine Forest Preserve	Cook			1355		-	x x x						-	-	-
Shoe Factory Road Tract Forest Preserve	Cook			739		15	x x						-	-	-
Ned Brown Forest Preserve	Cook			99		-	x						-	-	-
John Duffy Forest Preserve	Cook			175		-	x		x				-	-	-
Tinley Creek Div. Forest Preserve	Cook			3212		-	x x			x			-	-	-
Cook Co.	Cook			960		-	x x			x			-	-	-
McGinnis Slough Forest Preserve	Cook			50		-	x						-	-	-
Crabtree Tract Forest Preserve	Cook			829		50	x x						-	-	-
Lake Bloomington	McLean			1650		650	x x x	x	x	x			-	-	-
Keystone	Pekoria			500		50	x x x	x	x	x			-	-	-
Seven Mile Creek*	White	R-Wabash	650	236			x x x	x x	x						46540
Mill Creek *	Clark	R-Wabash	600	600			x x x	x x	x						-

INDIANA
RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA									
FEDERAL															
Corps of Engineers:															
Huntington Reservoir	Huntington	R-Wabash	NA	900			x	x	x	x	x	-	225000		
Salamonie	Wabash	R-Wabash	NA	2800			x	x	x	x	x	-	600000		
Mississinewa	Miami	R-Wabash	NA	3180			x	x	x	x	x	-	440000		
Patoka	Dubois-Orange	Q-White	NA	8900			x	x	x	x	x	-	1350000		
Clifty Creek	Bartholomew-Decatur	Q-White	NA	220			x	x	x	x	x	-	500000		
Big Pine	Warren	R-Wabash	NA	687			x	x	x	x	x	-	500000		
Wildcat Creek	Tippecanoe-Carroll	R-Wabash	NA	1320			x	x	x	x	x	-	700000		
Big Walnut Creek	Putnam	Q-White	NA	NA			x	x	x	x	x	-	-		
Downeyville	Rush	Q-White	NA	NA			x	x	x	x	x	-	-		
Big Blue	Panock-Rush	Q-White	NA	NA			x	x	x	x	x	-	-		
Brookville	Fayette	L-Miami	NA	3590 ^b			x	x	x	x	x	-	600000 ^b		
Monroe	Monroe	Q-White	NA	10750			x	x	x	x	x	-	700000		
Metamora	Fayette	L-Miami	NA	NA								-	-		
U. S. Forest Service:															
Hoosier National Forest				79560			x	x	x	x	x	-	-		
County Units															
Brown	Brown	Q-White	5500	-									-	-	
Crawford	Crawford	O-Evansville	11120	-									-	-	
Du Bois	Du Bois	Q-White	6000	-									-	-	
Jackson	Jackson	Q-White	3500	-									-	-	
Lawrence	Lawrence	Q-White	6500	-									-	-	
Martin	Martin	Q-White	2500	2									-	-	
Monroe	Monroe	Q-White	4500	-									-	-	
Orange	Orange	Q-White	20280	-									-	-	
Perry	Perry	O-Evansville	18660	160									-	-	
STATE															
State Park and Recreation Areas:															
Raccoon Lake Recreation Area	Parke	R-Wabash	3873	(2060)			x	x	x			264500	-	-	
Quabsche Recreation Area	Wells	R-Wabash	76	-			x	x				-	-		
McCormicks Creek State Park	Owen	Q-White	300	-			x	x				-	-		
Shakamak State Park	Sullivan	R-Wabash	710	260			x	x	x	x	x	-	-		
Pokagon State Park	Steuben		158	-			x	x		x	x	-	-	-	
Chain O'Lakes State Park	Noble		134	-			x	x		x	x	-	-	-	
Tippecanoe River State Park	Pulaski	R-Wabash	80	-			x	x		x	x	-	-	-	
Indiana Dunes State Park	Porter		210	-			x	x	x	x	x	-	-	-	
Spring Mill State Park	Lawrence	Q-White	70	-			x			x	x	-	-	-	
Lincoln State Park	Spencer	O-Evansville	150	3			x			x	x	-	-	-	
Versailles State Park	Ripley	K-Cincinnati	12	-						x	x	-	-	-	
Paynetown Peninsula-Monroe															
Reservoir	Monroe	Q-White	440	-			x	x	x	x	x	-	-	-	
Fairfax Peninsula-Monroe															
Reservoir	Monroe	Q-White	773	-			x	x	x	x	x	-	-	-	
Turkey Run State Park	Parke	R-Wabash	150	-			x	x		x	x	-	-	-	
State Forests:															
Yellowwood	Brown	Q-White	22	-					x		x	-	-	-	
Clark	Clark	Q-White	360	192			x	x	x	x	x	-	-	-	
Harrison	Harrison	O-Evansville	115	-					x		x	-	-	-	
State Fish and Game Areas:															
Moore Creek-Monroe Reservoir	Monroe	Q-White	170	-			x			x	x	-	-	-	
Pine Grove-Monroe Reservoir	Monroe	Q-White	170	-			x			x	x	-	-	-	
Crooked Creek-Monroe Reservoir	Monroe	Q-White	170	-			x			x	x	-	-	-	
Axton Branch-Monroe Reservoir	Monroe	Q-White	170	-			x			x	x	-	-	-	
Cutright Bridge-Monroe Reservoir	Monroe	Q-White	170	-			x			x	x	-	-	-	
Allen's Creek-Monroe Reservoir	Monroe	Q-White	170	-			x			x	x	-	-	-	

INDIANA
RECREATION INVENTORY

POTENTIAL AREA	LOCATION	ACREAGE				GENERAL RECREATION ACTIVITIES						VISITATION				
		TOTAL		WATER		PUNTING	CAMPING	BOATING	SAILING	LONGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA	
POTENTIAL AREA	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA										
State Fish and Game Areas:																
(con.)																
Gentry	Daviess	Q-White	2600	-								x	-	-	-	
Cresley	Jennings	Q-White	460	10								x	-	-	-	
Tri-County	Kosciusko	R-Wabash	500	-								x	-	-	-	
Pigeon River	LaGrange		4900		900	x						x	-	-	-	
Kingsbury	LaPorte		240	-	x							x	-	-	-	
La Salle	Newton		340	-								x	-	-	-	
Willow Slough	Newton		1200	-								x	-	-	-	
Spring Valley	Orange	Q-White	800	-								x	-	-	-	
Potoka	Pike	Q-White	5300	300								x	-	-	-	
Hovey Lake	Posey	O-Evansville	2000	-	x	x						x	-	-	-	
Winamac	Pulaski		500	-								x	-	-	-	
Six Creek	Washington	Q-White	400	-								x	-	-	-	
MAJOR LOCAL																
Watershed Conservation Districts:																
Aikman Creek *	Daviess	Q-White	420	420	x	x						x	-	75000		
Busselton Creek *	Sullivan	R-Wabash	100	375	x	x	x	x	x	x	-			103400		
Busselton Creek *	Sullivan	R-Wabash	420	420	x	x	x	x	x	x	-			50000		
Big Creek *	Posey	O-Evansville	1600	1600	x	x	x					x	-	-	-	
Delaney Creek *	Washington	Q-White	200	101	x	x	x	x	x	x	-			-	-	
Indiana Creek *	Johnson	Q-White	1040	410	x	x	x					x	-	-	-	
Indian Creek *	Morgan	Q-White	NA	100	x	x						x	-	-	-	
Little Raccoon *	Parke	R-Wabash	NA	120	x	x	x					x	-	-	-	
Little Raccoon *	Montgomery	R-Wabash	NA	360	x	x	x	x	x	x	-			-	-	
Little River *	Huntington	R-Wabash	800	190	x	x	x					x	-	-	-	
Mill Creek *	Hendricks	Q-White	NA	140	x	x	x					x	-	-	-	
Muddy Fork *	Clarke	N-Louisville	170	90	x	x	x					x	-	-	-	
Muddy Fork *	Clarke	N-Louisville	100	20	x	x	x					x	-	-	-	
Muddy Fork *	Clarke	N-Louisville	120	70	x	x	x					x	-	-	-	
Middle Fork at Anderson *	Perry	O-Evansville	90	45	x	x	x					x	-	90000		
Prines Creek *	Pike	Q-White	90	90	x	x	x	x	x	x	-			70000		
Upper Big Blue *	Henry	Q-White	3040	780	x	x	x	x	x	x	-			-	-	
West Bowes Creek *	Martin	Q-White	600	600	x	x	x	x	x	x	-			-	-	
City of Montgomery:																
Prairie Creek *	Daviess	Q-White	50	20	x	x	x	x	x	x	-			20000		

OHIO
RECREATION INVENTORY

POTENTIAL AREA	LOCATION		AVERAGE		GENERAL RECREATION ACTIVITIES		VISITATION							
			TOTAL	WATER			Most Recent Available	Projected						
	COUNTY	SUB-AREA	RASIN STUDY AREA	BASIN STUDY AREA	FISHING	CAMPING	BOATING	SWIMMING	LODGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
FEDERAL														
Corps of Engineers:														
Dillon Reservoir	Muskingum-Licking	E-Muskingum	NA	1330 ^b							274300		-	
Big Darby Reservoir	Franklin-Parmy	I-Scioto	NA	670 ^b							-	400000 ^a		
Suck Creek Reservoir	Clark	I-Miami	NA	101 ^b							-	500000 ^c		
Deer Creek Reservoir	Pickaway-Fayette	I-Scioto	NA	72 ^b							-	35000 ^c		
Prayevsberg Reservoir	Muskingum-Licking	E-Muskingum	NA	270 ^b							-	-		
West Branch Reservoir	Portage		NA	2650							-		880000 ^b	
Cesiar Creek Reservoir	Warren	I-Miami	NA	704 ^b							-	1010000 ^d		
Paint Creek Reservoir	Ross-Highland	I-Scioto	NA	711 ^b							-	225000 ^d		
White Oak Reservoir	Brown	X-Cincinnati	NA	28 ^b							-	275000 ^b		
Utica Reservoir	Knox	E-Muskingum	NA	1900							-	300000 ^b		
Raccoon Creek Reservoir	Licking	E-Muskingum	NA	340 ^b							-	81000 ^b		
Conner Run Reservoir	Columbus	E-Muskingum	NA	156 ^b							-	60000 ^b		
Hudie Run Reservoir	Stark	E-Muskingum	NA	235 ^b							-	180000 ^b		
Middle Branch Reservoir	Stark	E-Muskingum	NA	290 ^b							-	180000 ^b		
Moody Fork Reservoir	Carroll	E-Muskingum	NA	320 ^b							-	42000 ^b		
Still Fork Reservoir	Carroll	E-Muskingum	NA	300 ^b							-	36000 ^b		
Logan Reservoir	Fairfield-Hocking	I-Scioto	NA	400 ^b							-	1100000 ^b		
Lake Fork Reservoir	Licking	E-Muskingum	NA	425 ^b							-	-		
Lake Erie-Ohio River Canal	Ashland-Trumbull	I-Beaver	NA	56300 ^b							-	2000000 ^b		
Bucyrus Reservoir	Crawford		NA	1300 ^b							-	-		
South Park Reservoir	Cuyahoga		NA	2800 ^b							-	10000000 ^b		
Tinkers Creek Reservoir	Cuyahoga		NA	147 ^b							-	-		
East Fork Reservoir	Clermont	I-Little Miami	NA	790 ^b							867000	1900000 ^b		
Salt Creek Reservoir	Ross-Vinton	I-Scioto	NA	800 ^b							-	750000 ^b		
Alum Creek Reservoir	Delaware	I-Scioto	NA	350 ^b							-	1100000 ^b		
Mill Creek Reservoir	Delaware	I-Scioto	NA	NA							-	500000 ^b		
Federal Creek	Athens	E-Ohio	NA	155 ^b							-	600000 ^b		
Monday Creek Reservoir	Hocking	I-Scioto	NA	138 ^b							-	450000 ^b		
Sugar Grove Reservoir	Fairfield	I-Scioto	NA	86 ^b							-	720000 ^b		
Maleish Reservoir	Athens	E-Ohio	NA	400 ^b							-	180000 ^b		
U.S. Forest Service:														
wayne National Forest			72220	2595	X X X X X X X X						-	-		
County Units														
Athens	Athens	E-Ohio	8400	500							-	-		
Gallia	Gallia	E-Huntington	2000	200							-	-		
Hocking	Hocking	I-Scioto	3640	-							-	-		
Lawrence	Lawrence	E-Huntington	2540	470							-	-		
Monroe	Monroe	E-Ohio	12840	425							-	-		
Perry	Perry	E-Muskingum	6500	-							-	-		
Scioto	Scioto	E-Huntington	5100	490							-	-		
Washington	Washington	E-Ohio	10200	510							-	-		
U.S. Fish & Wildlife Service:														
Ottawa National Wildlife Refuge	Ottawa			200	-						-	-		
STATE														
State Parks:														
Clear Fork	Ashland	E-Muskingum	100	-	X X			X	-	-	-	-	-	-
Burr Oak	Athens	E-Ohio	300	-	X			X	-	-	-	-	-	-
St. Mary's	Auglaize		300	-	X X			X	-	-	-	-	-	-
Hueston Woods	Butler	I-Miami	1200	-	X			X	-	-	-	-	-	-
Kiser Lake	Champaign	I-Miami	80	-					X	-	-	-	-	-
Stimnick	Clermont	E-Cincinnati	40	-	X X			X	-	-	-	-	-	-
Cowan Lake	Clinton	I-Miami	200	-	X X			X	-	-	-	-	-	-
Beaver Creek	Columbus	E-Ohio	2000	-	X X			X	-	-	-	-	-	-
Guilford Lake	Columbus	E-Ohio	200	-	X			X	-	-	-	-	-	-
Independence Dam	Defiance			1000	-	X X		X	-	-	-	-	-	-

OHIO
RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE		GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL	WATER	PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA	BASIN	STUDY AREA	BASIN	STUDY AREA	BASIN	STUDY AREA	BASIN
State Parks: (con.)													
Kelly's Island	Erie		10		x	x	x			x	-	-	-
Buckeye	Fairfield	I-Scioto	1000	-	x					x	-	-	-
Harrison Lake St. Reservoir	Fulton		200		-	x				x	-	-	-
Punderson Lake	Geauga		300		-	x	x			x	-	-	-
John Bryan	Greene	I-Miami	100	-	x					x	-	-	-
Salt Fork Rec. Area	Guernsey	F-Muskingum	20500	2950	x	x	x	x	x	x	-	-	-
Rocky Fork	Highland	I-Scioto	400	-	x					x	-	-	-
Hocking	Hocking	I-Scioto	12500	-	x	x				x	-	-	-
Indian Lake	Logan	I-Miami	140	-	x					x	-	-	-
River Styx Rec. Area	Medina		774		301	x	x	x	x	x	-	-	-
East Harbor	Ottawa		30		x						-	-	-
A.W. Marion	Pickaway	I-Scioto	300	-	x					x	-	-	-
Pike Lake	Pike	H-Huntington	200	-	x	x				x	-	-	-
Nelson-Kennedy Ledges	Portage		250		-	x				x	-	-	-
Miller Blue Hole	Sandusky		100		-	x				x	-	-	-
Lake Loramie	Shelby	I-Miami	400	-	x	x				x	-	-	-
Portage Lake	Summit		34		-	x				x	-	-	-
State Forests:													
Brush Creek	Adams	K-Cincinnati	3000	-	x	x				x	-	-	-
Mohican	Ashland	F-Muskingum	6000	-	x	x				x	-	-	-
Yellow Creek	Columbiana	E-Ohio	19000	-	x	x				x	-	-	-
Maumee	Fulton		6000		-	x	x			x	-	-	-
Richland Furnace	Jackson	H-Huntington	7500	-		x				x	-	-	-
Shade River	Meigs	H-Huntington	400	-	x	x				x	-	-	-
Sunfish Creek	Monroe	E-Ohio	4000	-	x	x				x	-	-	-
Blue Creek	Muskingum	F-Muskingum	1000	-	x	x				x	-	-	-
Pike	Pike	H-Huntington	15000	-	x	x				x	-	-	-
Scioto	Ross	I-Scioto	6000	-	x					x	-	-	-
Shawnee	Scioto	H-Huntington	24000	-	x	x				x	-	-	-
Raccoon	Vinton	H-Huntington	4500	-	x	x				x	-	-	-
Zaleski	Vinton	H-Huntington	7000	-	x	x				x	-	-	-
State Fish & Wildlife Areas:													
Tranquility Wildlife Area	Adams	K-Cincinnati	1500	-	x	x				x	-	-	-
New Wildlife Area	Athens	E-Ohio	100	-		x				x	-	-	-
Indian Creek Wildlife	Brown	K-Cincinnati	1000	-	x	x				x	-	-	-
New Area	Butler	I-Miami	100	-		x				x	-	-	-
New Area	Champaign	I-Miami	80	-		x				x	-	-	-
Urban Game Farm	Champaign	I-Miami	300	-	x					x	-	-	-
Highlandtown	Columbiana	E-Ohio	1329	-	x	x	x			x	-	-	-
Mohican River	Coshocton	F-Muskingum	48	-	x	x	x			x	-	-	-
New Area	Crawford		16			x				x	-	-	-
Darke Co.	Darke	I-Miami	364	-		x				x	-	-	-
Resthaven	Erie		60	-	x					x	-	-	-
Tycoon Lake	Gallia	H-Huntington	2	-		x				x	-	-	-
Springvalley	Greene	I-Miami	300	-		x				x	-	-	-
New Area	Hamilton	K-Cincinnati	100	-		x				x	-	-	-
New Area	Hardin	I-Scioto	100	-		x				x	-	-	-
New Area	Henry		100	-		x				x	-	-	-
Fallsville	Highland	I-Scioto	1050	-	x	x				x	-	-	-
New Area	Holmes	F-Muskingum	486	-		x				x	-	-	-
Cooper Hollow	Jackson	H-Huntington	1200	-	x	x	x			x	-	-	-
Brush Creek	Jefferson	E-Ohio	1615	-	x	x				x	-	-	-
New Natural Area	Lake		800	200						x	-	-	-
New Area	Logan-Champaign	I-Miami	161	-	x	x				x	-	-	-
Big Island	Marion	I-Scioto	1000	-		x				x	-	-	-
Spencer Lake	Medina		700	-	x					x	-	-	-
New Area	Mercer		100	-		x				x	-	-	-
St. Marys	Mercer		1000	-		x				x	-	-	-

OHIO
RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES	VISITATION								
			TOTAL		WATER			Most Recent Available		Projected						
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA		PICNICING	CAMPING	BOATING	SWIMMING	LODGING	OTHER	BASIN	STUDY AREA	BASIN
Fish & Wildlife Areas: (con.)																
Wolf Creek	Morgan	F-Muskingum	1600	-			x x			x	-					
New Area	Ottawa			50	-		x x		x	x	-					
New Area	Ottawa			750	-		x x		x	x	-					
New Area	Pike	H-Huntington	32	-				x		x	-					
New Area	Portage			85	-				x	x	-					
Rush Run	Preble	L-Miami	450	-			x		x	x	-					
New Area	Putnam			100	-				x	x	-					
New Area	Ross	I-Scioto	16	-				x		x	-					
Tar Hollow	Ross	I-Scioto	14000	-			x x		x	x	-					
New Area	Sandusky			220	-				x	x	-					
New Area	Seneca			399	-			x	x	x	-					
Grand River	Trumbull	D-Beaver	4000	-			x x		x	x	-					
New Area	Van Wert			100	-				x	x	-					
New Area	Williams			400	-				x	x	-					
Beaver Creek	Williams			52	-				x	x	-					
New Area	Wood			100	-				x	x	-					
Killdeer	Wyandot			436	-		x		x	x	-					
MAJOR LOCAL																
Charles Mill Reservoir	Ashland	F-Muskingum	20	-			x x x x	x	x	-						
City Park-Springfield	Clark	L-Miami	1015	415			x x	x	x	x	-					
City Park-Columbus	Franklin	I-Scioto	400	300			x x x x	x	x	x	-					
City Park-Cincinnati	Hamilton	K-Cincinnati	1000	100			x x x	x	x	x	-					
Harrison Co. Reclamation Area	Harrison	F-Muskingum	4000	-			x		x	x	-					
Jefferson Co. Reclamation Area	Jefferson	E-Ohio	4000	-			x		x	x	-					
Lake Co. Metro. Park	Lake		1000	20	x x	x	x	x	x	x	-					
Lorain Metro. Park	Lorain		1237	200	x x	x	x	x	x	x	-					
Lorain Metro. Park	Lorain		1483	130	x		x	x	x	x	-					
City Park-Dayton	Montgomery	L-Miami	975	100	x x	x	x	x	x	x	-					
City Park-Natural Area	Paulding		1550	50	x x x	x	x	x	x	x	-					
Perry Co. Reclamation Area	Perry	F-Muskingum	8000	-					x	x	-					
City Park-Akron	Portage		2050	752	x x x	x	x	x	x	x	-					
City Park-Akron	Summit		300	50	x x x	x	x	x	x	x	-					
Wayne County Commissioners:	Chippewa*	F-Muskingum	141	24	x x x	x	x	x	x	x	-	41750				
Watershed Conservation Districts:																
Chippewa *	Medina		775	301	x x x	x	x	x	x	x	-	120000				
Margaret Creek *	Athens	E-Ohio	305	120	x x x	x	x	x	x	x	-	3120				
Ohio Department of Natural Resources:	West Fork Deer Creek *	Noble	F-Muskingum	1143	105	x x x	x	x	x	x	-	60200				

PENNSYLVANIA
RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES						VISITATION			
			TOTAL		WATER		FISHING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	Most Recent Available	Projected
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA										
FEDERAL																
Corps of Engineers:																
Curwensville Reservoir	Clearfield		2644		540	x x x x	x	-	-	-	-	-	-	-	-	
Allegheny Reservoir	Warren-McKean	A-Allegheny	NA	12050 ^b		x x x x	x	-	-	-	-	1750000 ^a				
Shenango Reservoir	Mercer	D-Beaver	NA	350 ^b		x x x x	x	-	-	-	-	225000 ^a				
Union City Reservoir	Erie		NA		2260 ^b	x x x x	x	-	-	-	-	-	-	-	-	
Muddy Creek Reservoir	Crawford	A-Allegheny	NA	1230		x x x x	x	-	-	-	-	-	-	-	-	
Woodcock Reservoir	Crawford	A-Allegheny	NA	10 ^b		x x x x	x	-	-	-	-	130000 ^a				
Redbank Creek Reservoir	Armstrong	A-Allegheny	NA	225		x x x x	x	-	-	-	-	-	-	-	-	
Blanchard Reservoir	Centre			7500		1730	x x x x	x	-	-	-	-	-	-	-	
National Park Service:																
Allegheny Portage-Johnstown																
Flood	Cambria	A-Allegheny	1005		5	x		x	-	-	-	75000				
STATE																
State Parks and Forests:																
Moraine	Butler	D-Beaver	14758		3200	x x x x	x	-	-	-	-	-	-	-	-	
Ohioopyle	Fayette	B-Monongahela	18500		150	x x x x	x	-	-	-	-	-	-	-	-	
Ryerson Station	Greene	B-Monongahela	1104		61	x x x x	x	-	-	-	-	-	-	-	-	
Prince Gallitzin	Cambria	A-Allegheny	6600		1740	x x x x	x	590800	-	-	-	-	-	-	-	
Yellow Creek	Indiana	A-Allegheny	2768		699	x x x x	x	-	-	-	-	-	-	-	-	
Canoe Creek	Bair		750		190	x x x x	x	-	-	-	-	-	-	-	-	
Oetocsin	Clearfield		49275		1432	x x x x	x	-	-	-	-	-	-	-	-	
Buffalo Creek	Armstrong	A-Allegheny	10002		155	x x x	x	-	-	-	-	-	-	-	-	
Elk Creek	Erie			850		50	x	x	-	-	-	-	-	-	-	
Oil Creek Gorge	Venango	A-Allegheny	5676		120	x x x x	x	-	-	-	-	-	-	-	-	
Sandy Creek	Mercer	D-Beaver	3500		1740	x x x x	x	-	-	-	-	-	-	-	-	
Conemaugh Gorge	Westmoreland	C-Pittsburgh	1500		100	x	x	-	-	-	-	-	-	-	-	
Sandy Creek	Fayette	B-Monongahela	2500		1700	x x x x	x	-	-	-	-	-	-	-	-	
State Fish Commission																
Recreation Areas:																
Walnut Creek	Erie		12		-	x x x x	x	-	-	-	-	15000		-	-	
Tamarack Lake	Crawford	A-Allegheny	826		560	x	x	-	-	-	-	-	-	-	-	
Raystown	Huntingdon			11		x x	x	-	-	-	-	4300		-	-	
Meadow Ground	Fulton			350		243	x					2200		-	-	
MAJOR LOCAL																
Washington Co. Planning Comm:																
Unnamed	Washington	C-Pittsburgh	2275			x x x	x	-	-	-	-	-	-	-	-	
Westmoreland Co. Recreation Commission:																
Unnamed	Westmoreland	C-Pittsburgh	300			x x x x	x	-	-	-	-	-	-	-	-	
Watershed Program (State):																
Wheeling Creek*	Greene et al	B-Monongahela	191180		19000	x x x x	x	-	-	-	-	-	-	-	-	
Harmon Creek*	Washington	C-Pittsburgh	150		50	x	x	-	-	-	-	10000		-	-	
Sandy Creek*	Mercer	D-Beaver	4000		1700	x x x x	x	-	-	-	-	200000		-	-	
Little Shenango*	Crawford	A-Allegheny	1800		625	x	x	-	-	-	-	10920		-	-	
Dunlap Creek*	Fayette	B-Monongahela	150		150	x	x	-	-	-	-	10000		-	-	
Cross Creek*	Washington	C-Pittsburgh	600		200	x x x	x	-	-	-	-	40000		-	-	
Jacobs Creek*	Westmoreland	C-Pittsburgh	400		150	x x x	x	-	-	-	-	20000		-	-	

**NEW YORK
RECREATION INVENTORY**

WEST VIRGINIA
RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES						VISITATION			
			TOTAL		WATER		PICKING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
	COUNTY	SUB - AREA	BASIN	STUDY AREA	BASIN	STUDY AREA										
FEDERAL																
Corps of Engineers:																
Rivlesburg Reservoir	Preston	B-Monongahela	NA	7170			x x x x	x	x	-	-	-	600000			
Stonewall Jackson Reservoir	Lewis	B-Monongahela	NA	2530			x x x x	x	x	-	-	-	305000			
Burnsville Reservoir	Braxton	G-Kanawha	NA	1050			x x x x	x	x	-	-	-	275000			
West Fork Reservoir	Roane	G-Kanawha	NA	1285			x x x x	x	x	-	-	-	225000			
Leading Creek Reservoir	Gilmer	G-Kanawha	NA	1050			x x x x	x	x	-	-	-	350000			
Summersville Reservoir	Nicholas	G-Kanawha	NA	NA			x x x x	x	x	-	-	-	300000			
East Lynn Reservoir	Wayne	H-Huntington	NA	1000			x x x x	x	x	-	-	-	250000			
Birch Reservoir	Braxton	G-Kanawha	NA	840			x x x x	x	x	-	-	-	NA			
Beech Fork Reservoir	Wayne	H-Huntington	NA	800			x x x x	x	x	-	-	-	150000			
West Fork River Reservoir	Lewis	B-Monongahela	NA	3340			x x x x	x	x	-	-	-	NA			
Justice Reservoir	Wyoming	J-Guyandot	NA	700			x x x x	x	x	-	-	-	180000			
STATE																
State Park and Recreation Areas:																
Canaan Valley	Tucker	B-Monongahela	5000	500			x x x x	x x x	-	-	-	-	-	-	-	
Pricketts Creek	Marion	B-Monongahela	250	50			x x x	x	x	-	-	-	-	-	-	
Valley Falls	Marion	B-Monongahela	1150	50			x x x	x x x	x	-	-	-	-	-	-	
Little Kanawha River	Wirt	G-Little Kanawha	2500	-			x x x	x x x	x	-	-	-	-	-	-	
North Bend	Ritchie	G-Little Kanawha	1000	-			x x x	x x x	x	-	-	-	-	-	-	
Mill Creek	Cabell	H-Huntington	2600	-			x x x	x x x	x	-	-	-	-	-	-	
Bug Run	Mason	H-Huntington	3050	-			x x x	x x	x	-	-	-	-	-	-	
Lower Kanawha River	Mason	H-Huntington	2000	-			x x x	x x	x	-	-	-	-	-	-	
River Bend	Jackson	H-Huntington	2500	-			x x x	x x x	x	-	-	-	-	-	-	
Hawks Nest	Fayette	G-Kanawha	500	-			x x	x x	x	-	-	-	-	-	-	
Cedar Creek	Gilmer	G-Kanawha	500	-			x x x	x x	x	-	-	-	-	-	-	
Holly River	Webster	G-Kanawha	1500	-			x x	x x	x	-	-	-	-	-	-	
Babcock	Fayette	G-Kanawha	1000	-			x x x	x x x	x	-	-	-	-	-	-	
Pipestem	Summers	G-Kanawha	4500	500			x x x	x x x	x	-	-	-	-	-	-	
Smoke Hole	Pendleton		4500	500			x x x	x x x	x	-	-	-	-	-	-	
Falls Mill	Braxton	G-Kanawha	1000	-			x x x	x x	x	-	-	-	-	-	-	
Twin Falls	Wyoming	J-Guyandot	4000	-			x x	x x x	x	-	-	-	-	-	-	
Berwind Lake	McDowell	J-Guyandot	5000	-			x x	x x	x	-	-	-	-	-	-	
State Forests:																
Coopers Rock	Preston	B-Monongahela	10000	-			x x	x x	x	-	-	-	-	-	-	
Kanawha	Kanawha	G-Kanawha	16000	-			x x x	x x x	x	-	-	-	-	-	-	
Calvin W. Price	Pocahontas	G-Kanawha	5000	-			x x	x x	x	-	-	-	-	-	-	
Kumbrabow	Randolph	B-Monongahela	10000	-			x x	x x	x	-	-	-	-	-	-	
Seneca	Pocahontas	G-Kanawha	8500	-			x x	x x	x	-	-	-	-	-	-	
Greenbrier	Greenbrier	G-Kanawha	14000	-			x x	x x	x	-	-	-	-	-	-	
Panther	McDowell	J-Guyandot	10000	-			x x x	x x x	x	-	-	-	-	-	-	
Camp Creek	Mercer	G-Kanawha	14000	-			x x x	x x x	x	-	-	-	-	-	-	
Cabwayingo	Wayne	H-Huntington	18300	-			x x x	x x x	x	-	-	-	-	-	-	
State Fish and Game Area:																
Stony River Dam	Grant		2800	500			x x x	x x x	x	-	-	-	-	-	-	
Pleasants Creek	Barbour	B-Monongahela	2000	-			x x x	x x x	x	-	-	-	-	-	-	
McClinic	Mason	H-Huntington	2000	-			x x	x x	x	-	-	-	-	-	-	
Chief Cornstalk	Mason	H-Huntington	1000	-			x x	x x	x	-	-	-	-	-	-	
Big Ugly	Lincoln	J-Guyandot	17000	-			x x	x x	x	-	-	-	-	-	-	
Elk River-Procious	Clay	G-Kanawha	55000	-			x x	x x	x	-	-	-	-	-	-	
Fork Creek	Boone	G-Kanawha	10000	-			x x	x x	x	-	-	-	-	-	-	
Back Fork of Elk	Webster	G-Kanawha	1000	-			x x x	x x x	x	-	-	-	-	-	-	
Bluestone	Summers	G-Kanawha	2000	-			x x x	x x x	x	-	-	-	-	-	-	
Laurel Creek	Mingo	J-Guyandot	522	31			x x x	x x x	x	-	-	-	-	-	-	
Brush Creek Falls	Mercer	G-Kanawha	60	19			x x	x x	x	-	-	-	-	-	-	

MARYLAND RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES						VISITATION			
			TOTAL		WATER		PICNICING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN	STUDY AREA
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA										
FEDERAL																
Corps of Engineers:																
Bloomington Reservoir	Garrett	Potomac River Basin		NA			955	x	x	x	x	x	-	-	-	
STATE																
State Parks and Recreation Areas:																
New Germany Recreation Area	Garrett	B-Monongahela					-					x	-	-	-	
Dan's Mountain State Park	Allegany				577		-	x	x			x	-	-	-	
Rocky Gap State Park	Allegany				3102		-	x	x	x	x	x	-	-	-	
State Game and Inland Fisheries:																
Dan's Mountain Management Area	Allegany				5810		-	x	x			x	-	-	-	

VIRGINIA RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES						VISITATION			
			TOTAL		WATER		PICNICKING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	Most Recent Available	Projected		
COUNTY	SUB-AREA	BASIN AREA	STUDY AREA	BASIN AREA	STUDY AREA								BASIN	STUDY AREA	BASIN	STUDY AREA
FEDERAL																
Corps of Engineers:																
Moores Ferry Reservoir	Grayson	G-Kanawha	NA	2000 ^b									-	-	-	-
John W. Flannagan Reservoir	Dickenson	J-Guyandot	NA	1143 ^b									-	150000 ^d		
North Fork Pound River Res.	Wise	J-Guyandot	NA	154 ^b									-	60000 ^d		
Haysi (Alternate) Reservoir	Dickenson	J-Guyandot	NA	580 ^b									-	150000 ^d		
Gathright & Falling Spring Reservoir	Alleghany		NA		NA	x x x x x x x							-	-	-	-
STATE																
State Parks:																
Busted Rock	Patrick		NA	NA	x x							x	-	-	-	-
Blue Ridge Lake	Grayson	G-Kanawha	NA	NA	x x x							x	-	-	-	-
Smith Mile Lake	Franklin		NA	NA	x x x x x							x	-	-	-	-
State Game and Inland Fisheries:																
Highland Wildlife Management Area	Highland		17753	-								x	4000	-		

**KENTUCKY
RECREATION INVENTORY**

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES				VISITATION			
			TOTAL		WATER		RICKLING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	Most Recent Available	Projected
	POTENTIAL AREA	COUNTY	SUB-AREA	BASIN STUDY AREA	BASIN STUDY AREA							BASIN STUDY AREA	BASIN STUDY AREA	
FEDERAL														
Corps of Engineers:														
Barley Reservoir	Lyon-Livingston	S-Cumberland	NA	15800 ^b								-	1300000 ^d	
Barren Reservoir	Barren-Allen	P-Green	20100	10000 ^a	x	x	x	x	x	201000		550000 ^d		
Big Half Mountain Reservoir	Magnolia	M-Licking	NA	1400								-	450000	
Booneville Reservoir	Owsley	M-Licking	NA	110 ^b								-	17000 ^b	
Cave Run Reservoir	Rowan-Bath	M-Licking	NA	8200 ^b								-	980000 ^b	
Carr Park Reservoir	Knott	M-Licking	NA	1030								-	400000 ^b	
Cellina Dam Reservoir	Monroe	S-Cumberland	NA	13150								-	-	
Eagle Creek Reservoir	Grant	M-Licking	NA	900 ^b								-	340000 ^b	
Palmouth Reservoir	Pendleton	M-Licking	NA	12300								-	-	
Fishtrap Reservoir	Pike	J-Guyandot	NA	1130 ^b								-	300000 ^b	
Grayson Reservoir	Carter	J-Guyandot	NA	1500 ^b								-	300000 ^b	
Green River Reservoir	Taylor	P-Green	NA	8200								-	650000	
Kinniconick Creek Reservoir	Lewis	H-Huntington	NA	1160 ^b								-	600000	
Laurel Reservoir	Whitley-Laurel	S-Cumberland	NA	3380 ^b								-	320000 ^b	
Naolin Reservoir	Edmonson	P-Green	13413	5795 ^b	x	x	x	x	x	206800		320000 ^d		
Paintsville Reservoir	Johnson	J-Guyandot	NA	NA								-	300000	
Red River Reservoir	Powell	M-Licking	NA	1930 ^b								-	600000 ^b	
Rough River Reservoir	Breckinridge-Grayson N-Louisville	9235	4375		x	x	x	x	x	650000		-	-	
Taylorsville Reservoir	Spencer	M-Licking	NA	1500 ^b								-	-	
Yatesville Reservoir	Lawrence	J-Guyandot	NA	NA								-	400000 ^c	
Rockcastle Narrows Reservoir	Laurel-Pulaski	S-Cumberland	NA	2650 ^b								-	-	
Parker Branch Reservoir	Laurel-Rockcastle	S-Cumberland	NA	506 ^b								-	-	
Martins Fork Reservoir	Harlan	S-Cumberland	NA	378 ^b								-	-	
Cumberland Falls Reservoir	McCreary	S-Cumberland	NA	2760 ^b								-	-	
Jellico Creek Reservoir	Whitley	S-Cumberland	NA	5900 ^b								-	-	
STATE														
State Parks:														
Kingdom Come	Harlan	S-Cumberland	905	5	x						-		-	
Rough River Dam	Grayson	P-Green	(503)	-	x	x	x	x	x	740700		-	-	
Lake Malone	Logan	P-Green	305	-	x	x	x	x		32800		-	-	
Fort Boonesborough	Madison	M-Licking	90	-	x	x	x	x		100000		-	-	
Palmouth Lake	Pendleton	M-Licking	700	150	x	x	x	x		172200		-	-	
General Burnside	Pulaski	S-Cumberland	500	-	x	x	x	x		2000		-	-	
Barkley Lake	Trigg	S-Cumberland	(1800)	-	x	x	x	x		-		-	-	
Elizabethtown Lake	Hardin	P-Green	200	85	x	x	x	x	x	-		-	-	
Unnamed Area	Estill	M-Licking	250	-	x	x	x	x	x	-		-	-	
Big Bone Lick	Boone	K-Cincinnati	163	-	x				x	53100		-	-	
Greenbo Lake	Greenup	H-Huntington	3610	380	x	x	x	x		294600		-	-	
Buckhorn Lake	Perry	M-Licking	1800	-	x	x	x	x	x	-		-	-	
Barren River	Allen-Barren	P-Green	1200	-	x	x	x	x	x	-		-	-	
State Fish and Wildlife Areas:														
Beech Creek Lake	Clay	M-Licking	60	50	x				x	-		-	-	
Stone Mt. Wildlife Area	Harlan	S-Cumberland	1525	-	x				x	-		-	-	
Twin Eagle	Owen	M-Licking	166	10	x				x	-		-	-	
MAJOR LOCAL														
City of Lexington	Fayette	M-Licking	902	231	x		x	x	x	-		-	-	
Watershed Conservation Districts:														
Little Kentucky River No. 1*	Henry	M-Licking	465	138	x	x	x	x		-		-	-	
Cypress Creek No. 3*	Union	O-Evansville	105	49	x	x	x	x	x	-		-	-	
Donaldson Creek No. 1*	Caldwell	O-Evansville	300	124	x	x	x	x	x	-		-	-	
Grassy Creek *	Morgan	M-Licking	150	100	x	x	x	x		-		-	-	
Fox Creek No. 4*	Fleming	M-Licking	260	75	x	x	x	x		-		-	-	
City of Caneyville:														
Caney Creek No. 2*	Grayson	P-Green	983	750	x	x	x	x		-		-	-	
City of Elizabethtown:														
Valley Creek No. 4*	Hardin	P-Green	300	162	x	x	x	x		-		-	-	

TENNESSEE RECREATION INVENTORY

POTENTIAL AREA	LOCATION		ACREAGE				GENERAL RECREATION ACTIVITIES					VISITATION			
			TOTAL		WATER		PICKNICKING	CAMPING	BOATING	SWIMMING	LOGGING	OTHER	BASIN	STUDY AREA	BASIN
	COUNTY	SUB-AREA	BASIN	STUDY AREA	BASIN	STUDY AREA									
FEDERAL															
Corps of Engineers:															
Cordell Hull Reservoir	Smith	S-Cumberland	NA		14000								-		400000
J. Percy Priest Reservoir	Davidson	S-Cumberland	NA		14200								-		1700000
Three Island Reservoir	Dickson-Cheatham	S-Cumberland	NA		9740								-		-
Tennessee Valley Authority:															
Between-the-Lakes	Stewart	S-Cumberland	65182		-		x	x	x	x			-		-
Great Falls Lake	Warren-White	S-Cumberland	1677		-		x	x	x	x	x	x	-		-
U.S. Fish and Wildlife Service:															
Cross Creeks Refuge	Stewart	S-Cumberland	3552		3100			x		x		12700			-
STATE															
State Parks:															
Fall Creek Falls	Van Buren	S-Cumberland	200		-		x		x		-		-		-
MAJOR LOCAL															
Oneida:															
Pine Creek*	Scott	S-Cumberland	94		31		x	x	x		x	-			45000
Watershed Districts:															
Pine Creek*	Scott	S-Cumberland	54		20		x		x	-					4600

APPENDIX III

COUNTY COMPOSITION OF OHIO RIVER BASIN SUBAREAS

<u>County</u>	<u>State</u>	<u>Standard Metropolitan Statistical Area</u>
<u>Subarea A--ALLEgheny</u>		
Armstrong	Pennsylvania	
Cambria	Pennsylvania	Johnstown
Cattaraugus	New York	
Chautauqua	New York	
Clarion	Pennsylvania	
Crawford	Pennsylvania	
Elk	Pennsylvania	
Forest	Pennsylvania	
Indiana	Pennsylvania	
Jefferson	Pennsylvania	
McKean	Pennsylvania	
Somerset	Pennsylvania	Johnstown
Venango	Pennsylvania	
Warren	Pennsylvania	
<u>Subarea B--MONONGAHELA</u>		
Barbour	West Virginia	
Fayette	Pennsylvania	
Garrett	Maryland	
Greene	Pennsylvania	
Harrison	West Virginia	
Lewis	West Virginia	
Marion	West Virginia	
Monongalia	West Virginia	
Preston	West Virginia	
Randolph	West Virginia	
Taylor	West Virginia	
Tucker	West Virginia	
Upshur	West Virginia	
<u>Subarea C--PITTSBURGH SMSA</u>		
Allegheny	Pennsylvania	Pittsburgh
Beaver	Pennsylvania	Pittsburgh
Washington	Pennsylvania	Pittsburgh
Westmoreland	Pennsylvania	Pittsburgh

<u>County</u>	<u>State</u>	<u>Standard Metropolitan Statistical Area</u>
<u>Subarea D--BEAVER</u>		
Butler	Pennsylvania	
Lawrence	Pennsylvania	
Mahoning	Ohio	Youngstown-Warren
Mercer	Pennsylvania	
Trumbull	Ohio	Youngstown-Warren
<u>Subarea E--UPPER OHIO</u>		
Athens	Ohio	
Belmont	Ohio	Wheeling
Brooke	West Virginia	Steubenville, Weirton
Columbiana	Ohio	
Doddridge	West Virginia	
Hancock	West Virginia	Steubenville-Weirton
Jefferson	Ohio	Steubenville-Weirton
Marshall	West Virginia	Wheeling
Monroe	Ohio	
Ohio	West Virginia	Wheeling
Pleasants	West Virginia	
Tyler	West Virginia	
Washington	Ohio	
Wetzel	West Virginia	
Wood	West Virginia	
<u>Subarea F--MUSKINGUM</u>		
Ashland	Ohio	
Carroll	Ohio	
Coshocton	Ohio	
Guernsey	Ohio	
Harrison	Ohio	
Holmes	Ohio	
Knox	Ohio	
Licking	Ohio	
Morgan	Ohio	
Muskingum	Ohio	
Noble	Ohio	
Perry	Ohio	
Richland	Ohio	
Stark	Ohio	Canton
Tuscarawas	Ohio	
Wayne	Ohio	

<u>County</u>	<u>State</u>	<u>Standard Metropolitan Statistical Area</u>
<u>Subarea G--KANAWHA-LITTLE KANAWHA</u>		
Alleghany	North Carolina	
Ashe	North Carolina	
Bland	Virginia	
Boone	West Virginia	
Braxton	West Virginia	
Calhoun	West Virginia	
Carroll	Virginia	
Clay	West Virginia	
Fayette	West Virginia	
Floyd	Virginia	
Giles	Virginia	
Gilmer	West Virginia	
Grayson	Virginia	
Greenbrier	West Virginia	
Kanawha	West Virginia	Charleston
Mercer	West Virginia	
Monroe	West Virginia	
Montgomery	Virginia	
Nicholas	West Virginia	
Pacahtontas	West Virginia	
Pulaski	Virginia	
Putnam	West Virginia	
Raleigh	West Virginia	
Ritchie	West Virginia	
Roane	West Virginia	
Summers	West Virginia	
Watauga	North Carolina	
Webster	West Virginia	
Wirt	West Virginia	
Wythe	Virginia	

Subarea H--OHIO HUNTINGTON

Boyd	Kentucky	Huntington-Ashland
Cabell	West Virginia	Huntington-Ashland
Gallia	Ohio	
Greenup	Kentucky	
Jackson	Ohio	
Jackson	West Virginia	
Lawrence	Ohio	Huntington-Ashland

<u>County</u>	<u>State</u>	<u>Standard Metropolitan Statistical Area</u>
<u>Subarea H--OHIO-HUNTINGTON (con)</u>		
Lewis	Kentucky	
Mason	West Virginia	
Meigs	Ohio	
Pike	Ohio	
Scioto	Ohio	
Vinton	Ohio	
Wayne	West Virginia	Huntington-Ashland

Subarea I--SCIOTO

Delaware	Ohio	
Fairfield	Ohio	
Fayette	Ohio	
Franklin	Ohio	Columbus
Hardin	Ohio	
Highland	Ohio	
Hocking	Ohio	
Madison	Ohio	
Marion	Ohio	
Morrow	Ohio	
Pickaway	Ohio	
Ross	Ohio	
Union	Ohio	

Subarea J--GUYANDOT-BIG SANDY-LITTLE SANDY

Buchanan	Virginia	
Carter	Kentucky	
Dickenson	Virginia	
Elliott	Kentucky	
Floyd	Kentucky	
Johnson	Kentucky	
Lawrence	Kentucky	
Lincoln	West Virginia	
Logan	West Virginia	
McDowell	West Virginia	
Martin	Kentucky	
Mingo	West Virginia	
Pike	Kentucky	
Wyoming	West Virginia	

Standard
Metropolitan
Statistical
Area

<u>County</u>	<u>State</u>	
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Subarea K--OHIO-CINCINNATI

Adams	Ohio	
Boone	Kentucky	
Bracken	Kentucky	
Brown	Ohio	
Campbell	Kentucky	Cincinnati
Clermont	Ohio	
Dearborn	Indiana	
Gallatin	Kentucky	
Hamilton	Ohio	Cincinnati
Kenton	Kentucky	Cincinnati
Mason	Kentucky	
Ohio	Indiana	
Ripley	Indiana	
Switzerland	Indiana	

Subarea L--LITTLE MIAMI-MIAMI

Butler	Ohio	Hamilton-Middletown
Champaign	Ohio	
Clark	Ohio	Springfield
Clinton	Ohio	
Darke	Ohio	
Fayette	Indiana	
Franklin	Indiana	
Greene	Ohio	Dayton
Logan	Ohio	
Miami	Ohio	Dayton
Montgomery	Ohio	Dayton
Preble	Ohio	
Shelby	Ohio	
Union	Indiana	
Warren	Ohio	
Wayne	Indiana	

Subarea M--LICKING-KENTUCKY-SALT

Anderson	Kentucky	
Bath	Kentucky	
Bourbon	Kentucky	
Boyle	Kentucky	
Breathill	Kentucky	
Clark	Kentucky	
Clay	Kentucky	
Estill	Kentucky	

<u>County</u>	<u>State</u>	<u>Standard Metropolitan Statistical Area</u>
<u>Subarea M--LICKING-KENTUCKY-SALT (con)</u>		
Fayette	Kentucky	Lexington
Fleming	Kentucky	
Franklin	Kentucky	
Garrard	Kentucky	
Grant	Kentucky	
Harrison	Kentucky	
Henry	Kentucky	
Jessamine	Kentucky	
Knott	Kentucky	
Lee	Kentucky	
Leslie	Kentucky	
Letcher	Kentucky	
Lincoln	Kentucky	
Madison	Kentucky	
Majoffin	Kentucky	
Marion	Kentucky	
Menifee	Kentucky	
Mercer	Kentucky	
Montgomery	Kentucky	
Morgan	Kentucky	
Nelson	Kentucky	
Nicholas	Kentucky	
Owen	Kentucky	
Owsley	Kentucky	
Pendleton	Kentucky	
Perry	Kentucky	
Powell	Kentucky	
Robertson	Kentucky	
Rowan	Kentucky	
Scott	Kentucky	
Shelby	Kentucky	
Spencer	Kentucky	
Washington	Kentucky	
Wolfe	Kentucky	
Woodford	Kentucky	

Subarea N--OHIO-LOUISVILLE

Breckinridge	Kentucky	
Bullitt	Kentucky	
Carroll	Kentucky	
Clark	Indiana	Louisville
Crawford	Indiana	
Floyd	Indiana	Louisville

Standard
Metropolitan
Statistical
Area

<u>County</u>	<u>State</u>	<u>Standard Metropolitan Statistical Area</u>
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Subarea N--OHIO-LOUISVILLE (con)

Harrison	Indiana	
Jefferson	Indiana	
Jefferson	Kentucky	Louisville
Meade	Kentucky	
Oldham	Kentucky	
Trimble	Kentucky	

Subarea O--LOWER OHIO-EVANSVILLE

Ballard	Kentucky	
Caldwell	Kentucky	
Crittenden	Kentucky	
Daviess	Kentucky	
Gallatin	Illinois	
Hancock	Kentucky	
Hardin	Illinois	
Henderson	Kentucky	Evansville
Johnson	Illinois	
Livingston	Kentucky	
McCracken	Kentucky	
McLean	Kentucky	
Massac	Illinois	
Perry	Indiana	
Pope	Illinois	
Posey	Indiana	
Pulaski	Illinois	
Saline	Illinois	
Spencer	Indiana	
Union	Kentucky	
Vanderburgh	Indiana	Evansville
Warrick	Indiana	
Webster	Kentucky	

Subarea P--GREEN

Adair	Kentucky	
Allen	Kentucky	
Barren	Kentucky	
Butler	Kentucky	
Casey	Kentucky	
Edmonson	Kentucky	
Grayson	Kentucky	
Green	Kentucky	
Hardin	Kentucky	

Standard
Metropolitan
Statistical
Area

<u>County</u>	<u>State</u>	<u>Area</u>
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Subarea P--GREEN (con)

Hart	Kentucky
Hopkins	Kentucky
Larue	Kentucky
Logan	Kentucky
Metcalfe	Kentucky
Muhlenberg	Kentucky
Ohio	Kentucky
Simpson	Kentucky
Taylor	Kentucky
Warren	Kentucky

Subarea Q--WHITE

Bartholomew	Indiana
Boone	Indiana
Brown	Indiana
Clay	Indiana
Daviess	Indiana
Decatur	Indiana
Delaware	Indiana
Dubois	Indiana
Gibson	Indiana
Greene	Indiana
Hamilton	Indiana
Hancock	Indiana
Hendricks	Indiana
Henry	Indiana
Jackson	Indiana
Jennings	Indiana
Johnson	Indiana
Knox	Indiana
Lawrence	Indiana
Madison	Indiana
Marion	Indiana
Martin	Indiana
Monroe	Indiana
Morgan	Indiana
Orange	Indiana
Owen	Indiana
Pike	Indiana
Putnam	Indiana
Randolph	Indiana
Rush	Indiana
Scott	Indiana

Muncie

Indianapolis

Standard
Metropolitan
Statistical
Area

<u>County</u>	<u>State</u>	
<u>Subarea Q--WHITE (con)</u>		
Shelby	Indiana	
Washington	Indiana	
<u>Subarea R--WABASH</u>		
Benton	Indiana	
Blackford	Indiana	
Carroll	Indiana	
Cass	Indiana	
Champaign	Illinois	
Clark	Illinois	Champaign-Urbana
Clay	Illinois	
Clinton	Indiana	
Coles	Illinois	
Crawford	Illinois	
Cumberland	Illinois	
Douglas	Illinois	
Edgar	Illinois	
Edwards	Illinois	
Effingham	Illinois	
Fountain	Indiana	
Fulton	Indiana	
Grant	Indiana	
Hamilton	Illinois	
Howard	Indiana	
Huntington	Indiana	
Jasper	Illinois	
Jay	Indiana	
Kosciusko	Indiana	
Lawrence	Illinois	
Miami	Indiana	
Montgomery	Indiana	
Parke	Indiana	
Pulaski	Indiana	
Richland	Illinois	
Sullivan	Indiana	
Tippecanoe	Indiana	
Tipton	Indiana	
Vermillion	Illinois	
Vermillion	Indiana	
Vigo	Indiana	Terre Haute
Wabash	Illinois	
Wabash	Indiana	
Warren	Indiana	

Standard
Metropolitan
Statistical
Area

<u>County</u>	<u>State</u>	<u>Area</u>
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Subarea R--WABASH (con)

Wayne	Illinois
Wells	Indiana
White	Illinois
White	Indiana
Whitley	Indiana

Subarea S--CUMBERLAND

Bell	Kentucky
Cannon	Tennessee
Cheatham	Tennessee
Christian	Kentucky
Clay	Tennessee
Clinton	Kentucky
Cumberland	Kentucky
Davidson	Tennessee
DeKalb	Tennessee
Dickson	Tennessee
Fentress	Tennessee
Harlan	Kentucky
Houston	Tennessee
Jackson	Kentucky
Jackson	Tennessee
Knox	Kentucky
Laurel	Kentucky
Lyon	Kentucky
McCreary	Kentucky
Macon	Tennessee
Monroe	Kentucky
Montgomery	Tennessee
Overton	Tennessee
Pickett	Tennessee
Pulaski	Kentucky
Putnam	Tennessee
Robertson	Tennessee
Rockcastle	Kentucky
Russell	Kentucky
Rutherford	Tennessee
Scott	Tennessee
Smith	Tennessee
Stewart	Tennessee
Sumner	Tennessee
Todd	Kentucky
Trigg	Kentucky

Nashville

Standard
Metropolitan
Statistical
Area

County State

Subarea S--CUMBERLAND (con)

Trousdale	Tennessee
Van Buren	Tennessee
Warren	Tennessee
Wayne	Kentucky
White	Tennessee
Whitley	Kentucky
Williamson	Tennessee
Wilson	Tennessee

APPENDIX IV

POLICIES AFFECTING WATER-ORIENTED OUTDOOR RECREATION DEVELOPMENT

A. Introduction. This appendix deals primarily with outdoor recreation policy as reflected in recent legislation, particularly in areas of planning, coordination, and financial assistance.

B. Planning. The Outdoor Recreation Resources Review Commission specifically recommended that each state, through a central agency, develop a long-range plan for outdoor recreation aimed at providing adequate opportunities for the public, and acquiring additional areas where necessary. The Land and Water Conservation Fund Act of 1965 provided the necessary stimulus to move the Commission's recommendation toward accomplishment. The Act required the preparation of a statewide comprehensive outdoor recreation plan by each state prior to the distribution of matching grants for land acquisition and development of recreation areas and facilities. In addition, matching grants for planning were provided for under this Act. Some state plans are now qualified for matching grants, and by the end of 1965 most states should have completed at least the initial draft of their statewide outdoor recreation comprehensive plans.

Public Law 88-29, enacted May 28, 1963, authorized Federal action in outdoor recreation planning. Section 2 of this Act authorized the Secretary of the Interior to: (a) prepare and maintain a continuing inventory and evaluation of outdoor recreation needs and resources of the United States, (b) prepare a system for classification of outdoor recreation resources, and (c) formulate and maintain a comprehensive nationwide outdoor recreation plan. The Bureau of Outdoor Recreation is carrying out these outdoor recreation planning functions by developing a Nationwide Plan.

The recently enacted Federal Water Projects Recreation Act (Public Law 89-72, July 9, 1965) adds new emphasis to outdoor recreation planning in Federal water resource projects and authorizes full development for recreation and fish and wildlife purposes. Specifically, Section 6 of the Act expressly provides that any report on a proposed project shall include the views of the Secretary of the Interior in accordance with the Organic Act of the Bureau of Outdoor Recreation. The Bureau, under provisions of this Act, will undertake preauthorization planning for outdoor recreation on proposed Federal water resource projects, and, additionally, as also directed by the above law, will determine to what extent any proposed development is in accord with statewide outdoor recreation plans as prepared pursuant to the Land and Water Conservation Fund Act.

Outdoor recreation planning is also a function of local governmental agencies, particularly of importance in and around metropolitan centers and urban areas where the securing of open space and the developing of new recreation areas is essential toward efforts to provide for growing outdoor recreation needs. Regional agencies and county and city governments are making an outdoor recreation planning effort in response to opportunity for Federal assistance made available through the Land and Water Conservation Fund Act.

C. Coordination. The Outdoor Recreation Resource Review Commission, anticipating the need for a coordinated effort among the various levels of government to meet the growing demands for outdoor recreation, recommended the creation of a Bureau of Outdoor Recreation in the Department of the Interior. The Commission specifically viewed the Bureau as the nonland managing agency to coordinate the recreation-related activities of more than 20 Federal agencies, and to encourage interstate and regional cooperation.

Public Law 88-29, on May 28, 1963, authorized the Secretary of the Interior to cooperate with Federal agencies and promote coordination of Federal outdoor recreation programs. The Bureau of Outdoor Recreation has been delegated to carry out this function of the law.

A second and equally important contribution of the Commission to outdoor recreation coordination was its recommendation to establish a Recreation Advisory Council consisting of the Secretaries of Interior, Agriculture, and Defense. The council would promote interdepartmental coordination as well as provide broad policy guidance on matters affecting outdoor recreation programs. Both the Bureau of Outdoor Recreation and the Recreation Advisory Council became a reality as a result of the Commission's report to the President and the Congress.

D. Financial Assistance. A major recommendation of the Outdoor Recreation Resources Review Commission was the establishment of a Federal grants-in-aid program to stimulate and assist states in meeting the demand for outdoor recreation. Public Law 88-578, passed September 3, 1964, created the Land and Water Conservation Fund for this purpose. The Fund derives its revenue from (1) admission and user fees at Federal recreation areas which meet certain qualifications, (2) net proceeds from sale of surplus Federal real property, and (3) the existing tax on motorboat fuels. As indicated in Part B of this appendix, a comprehensive statewide outdoor recreation plan is required prior to the Secretary's consideration of financial assistance to the states for acquisition or development projects. Payments to any state shall not exceed 50 percent of the cost of planning, acquisition, or development. Moneys appropriated from the Fund are also available for Federal purposes, in the acquisition of land, waters, or interests in land or waters for (1) National park system recreation areas, (2) National forest system, (3) threatened species, and (4) recreation at refuges.

Title IX of the recently enacted Housing and Urban Development Act of 1965 also establishes a key source of financial assistance in outdoor recreation. The Act provides grants up to 50 percent to acquire and develop open space for park recreation, conservation, scenic or historic purposes. Public Law 566 and the Food and Agriculture Act of 1965 also provide grants for acquisition and development of recreation areas.

The Land and Water Conservation Fund, along with the Housing and Urban Development Act, Highway Beautification Act, Appalachia program, Scenic Roads and Parkways, and other related programs should provide the financial assistance and stimulus necessary for the states to embark on the task of satisfying the needs for water-oriented outdoor recreation identified in this study.

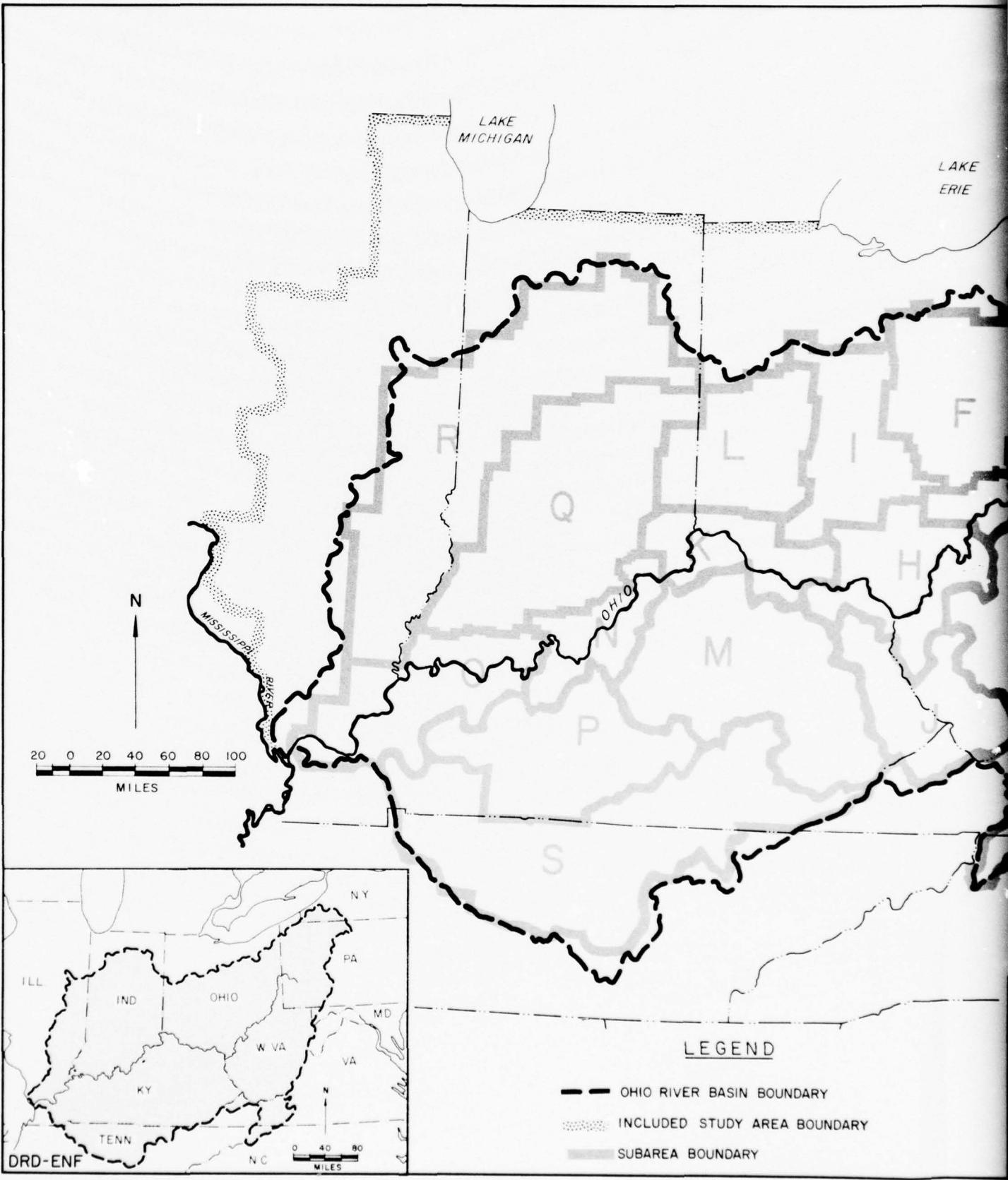
E. Legislation. A listing of selected Federal Statutes reflecting outdoor recreation policy is provided here as an indication of the growing significance attached to leisure pursuits in the American way of life by the Congress of the United States.

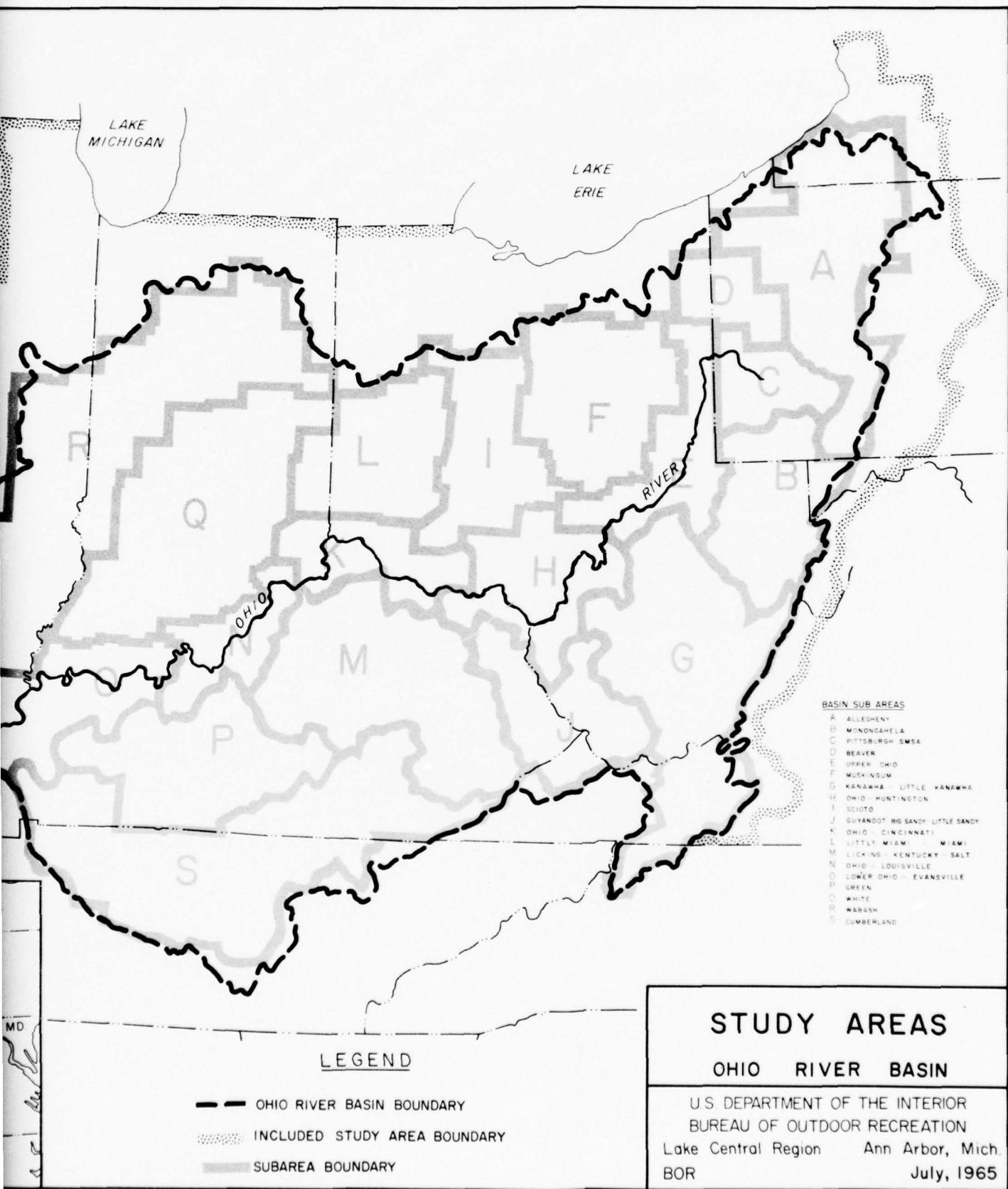
OUTDOOR RECREATION POLICY
AS REFLECTED IN SELECTED FEDERAL STATUTES

1. National Park Service Act of 1916.
2. Historic Sites Act of 1935.
3. National Park Administration Act.
4. Federal Aid in Wildlife Restoration Act (Pittman-Robertson).
5. Surplus Property Act of 1944.
6. Flood Control Act of 1944.
7. Public Health Service Act of 1944.
8. Housing Act of 1949, Title I, Slum Clearance and Urban Renewal.
9. Federal Aid in Fish Restoration and Management Projects Act (Dingell-Johnson).
10. Recreation and Public Purposes Act.
11. Watershed Protection and Flood Prevention Act of 1954.
12. Federal Water Pollution Control Act.
13. Federal Aid Highway Act of 1958.
14. Fish and Wildlife Coordination Act of 1958.
15. Outdoor Recreation Resources Review Act of 1958.
16. National Forests, Multiple Use - Congressional Declaration of policy, 1960.
17. Area Redevelopment Act of 1961.
18. Housing Act of 1961, Title VII.
19. Flood Control Act of 1962.
20. Food and Agriculture Act of 1962.
21. Refugees-Hatcheries Recreation Act.
22. Bureau of Outdoor Recreation Organic Act of 1963.
23. Highway Beautification Act of 1965.
24. Land and Water Conservation Fund Act of 1965.
25. Federal Water Project Recreation Act of 1965.
26. Housing and Urban Development Act of 1965, Title IX.
27. Water Resources Planning Act of 1965.
28. Food and Agriculture Act of 1965.

LIST OF PLATES

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Kentucky and Tennessee	14
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Illinois	15
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West Virginia, Maryland, Virginia, and North Carolina	19
Kentucky and Tennessee	20





U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
Lake Central Region Ann Arbor, Mich.
BOR July, 1965

Plate I

2

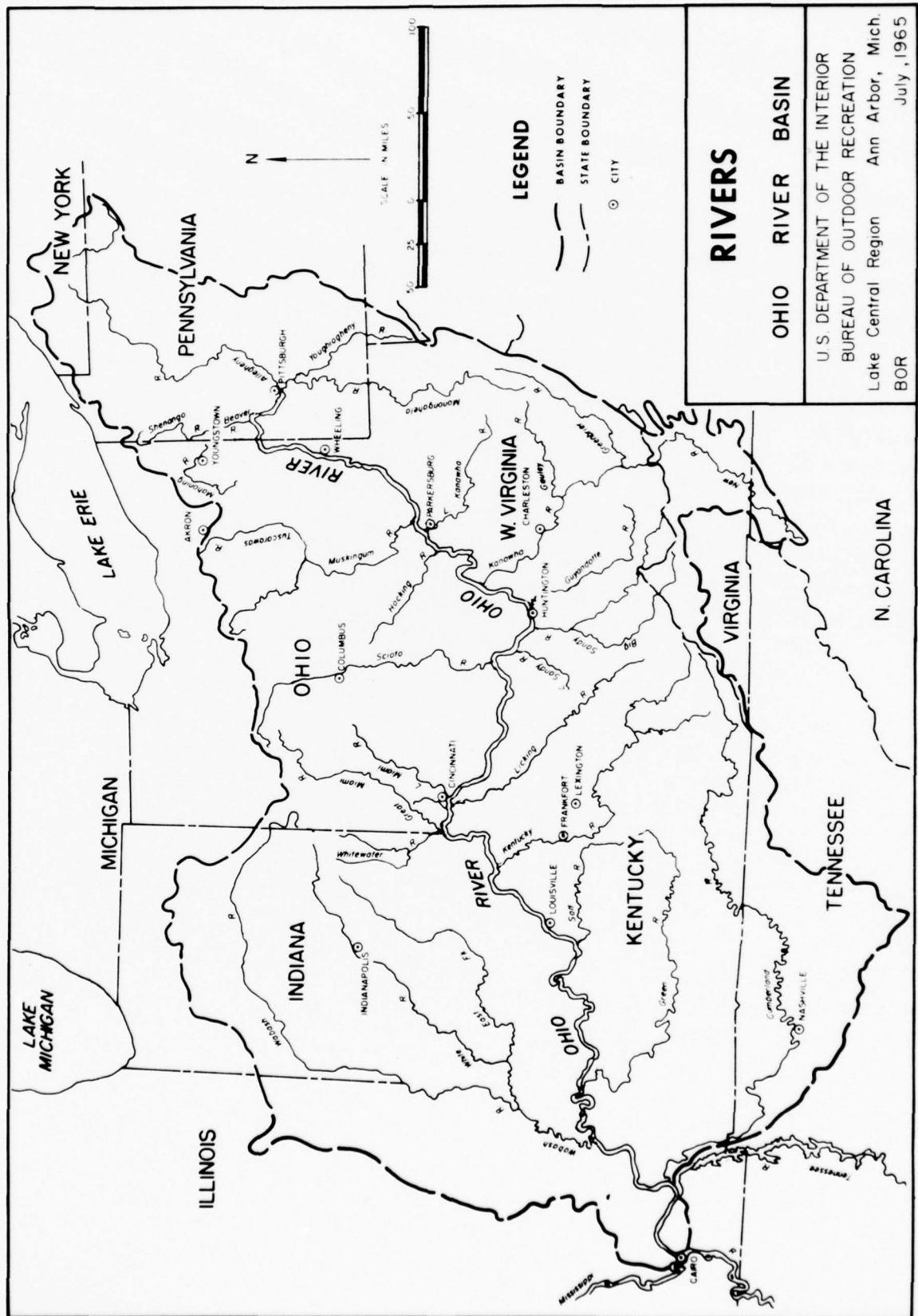
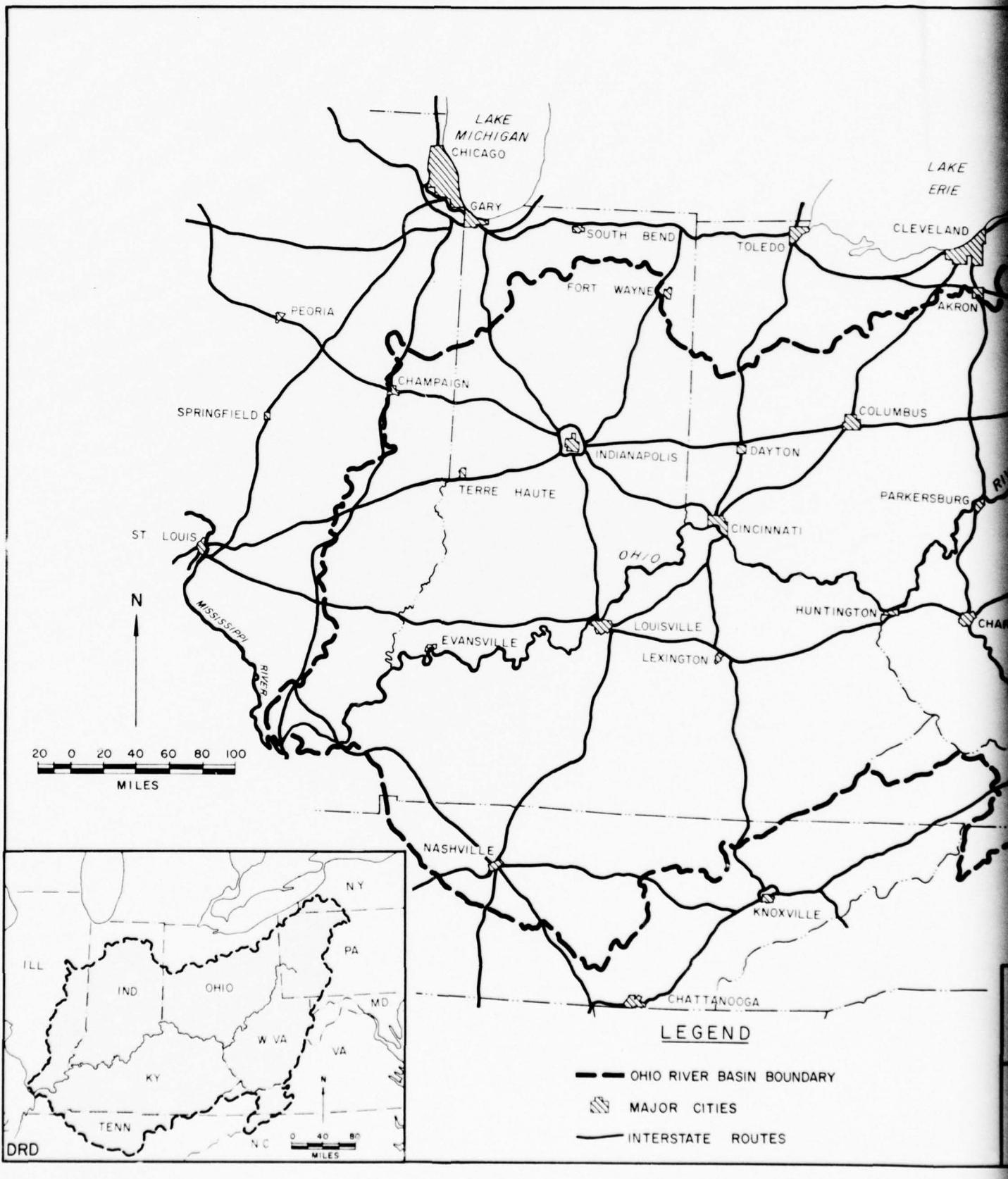
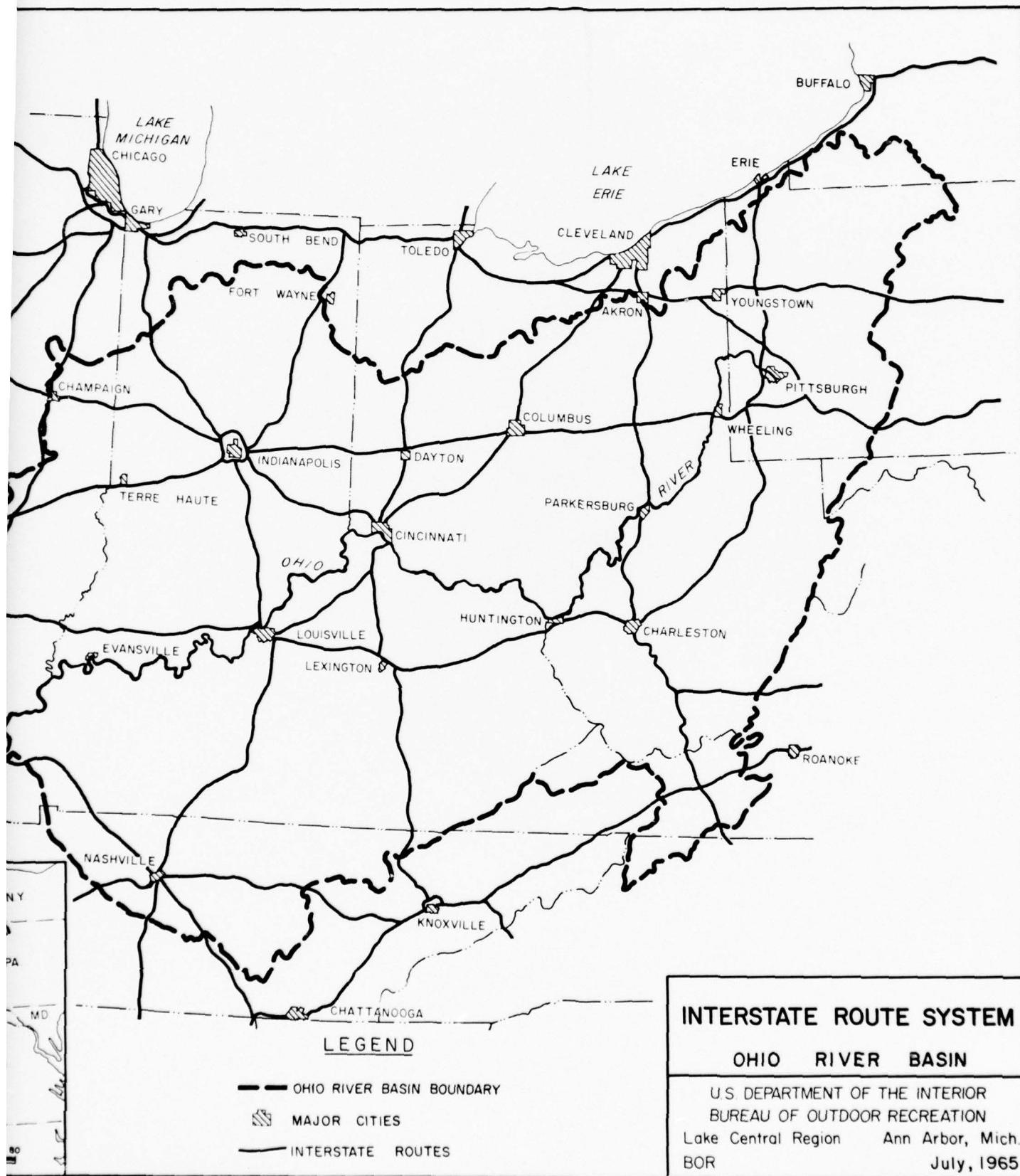
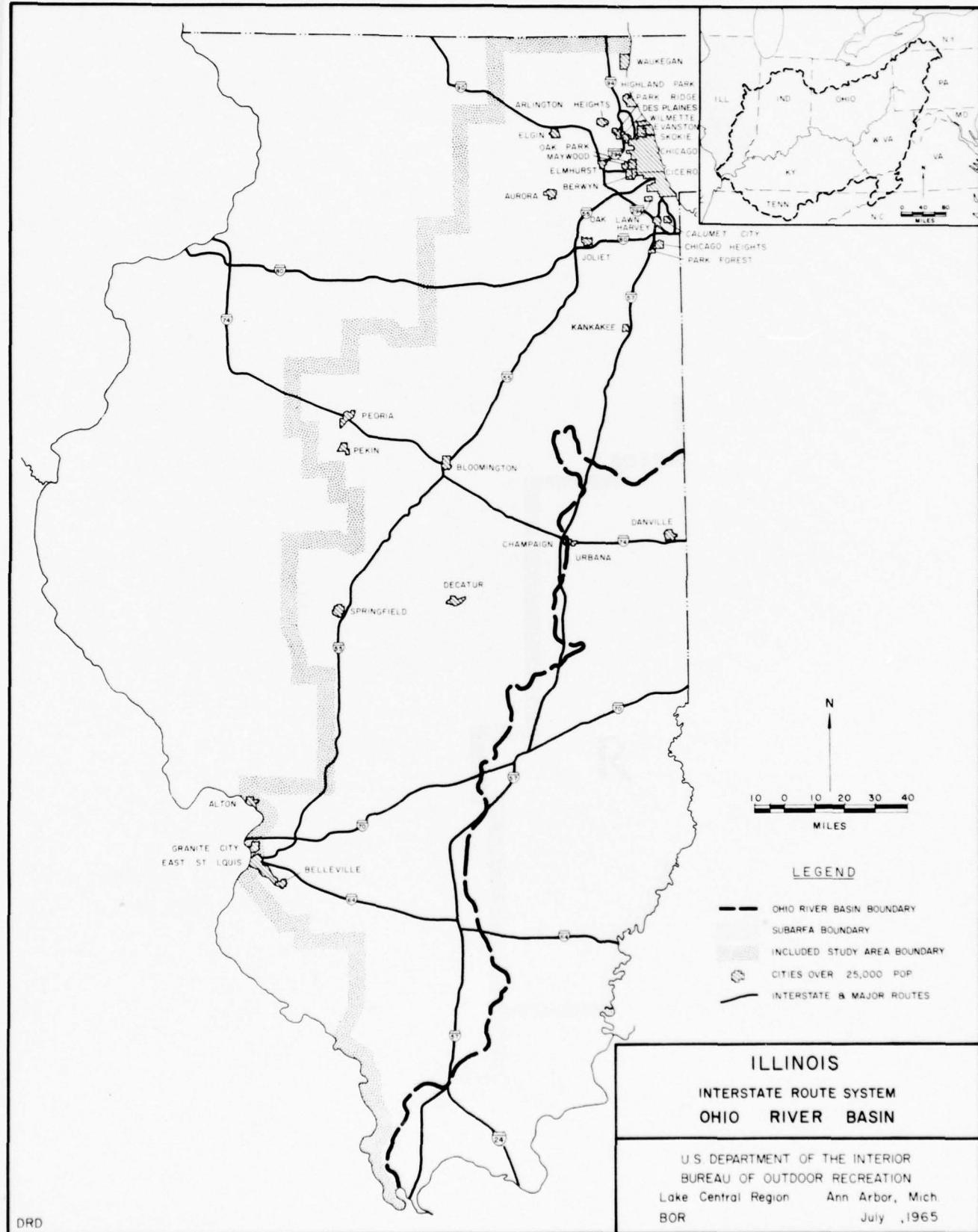
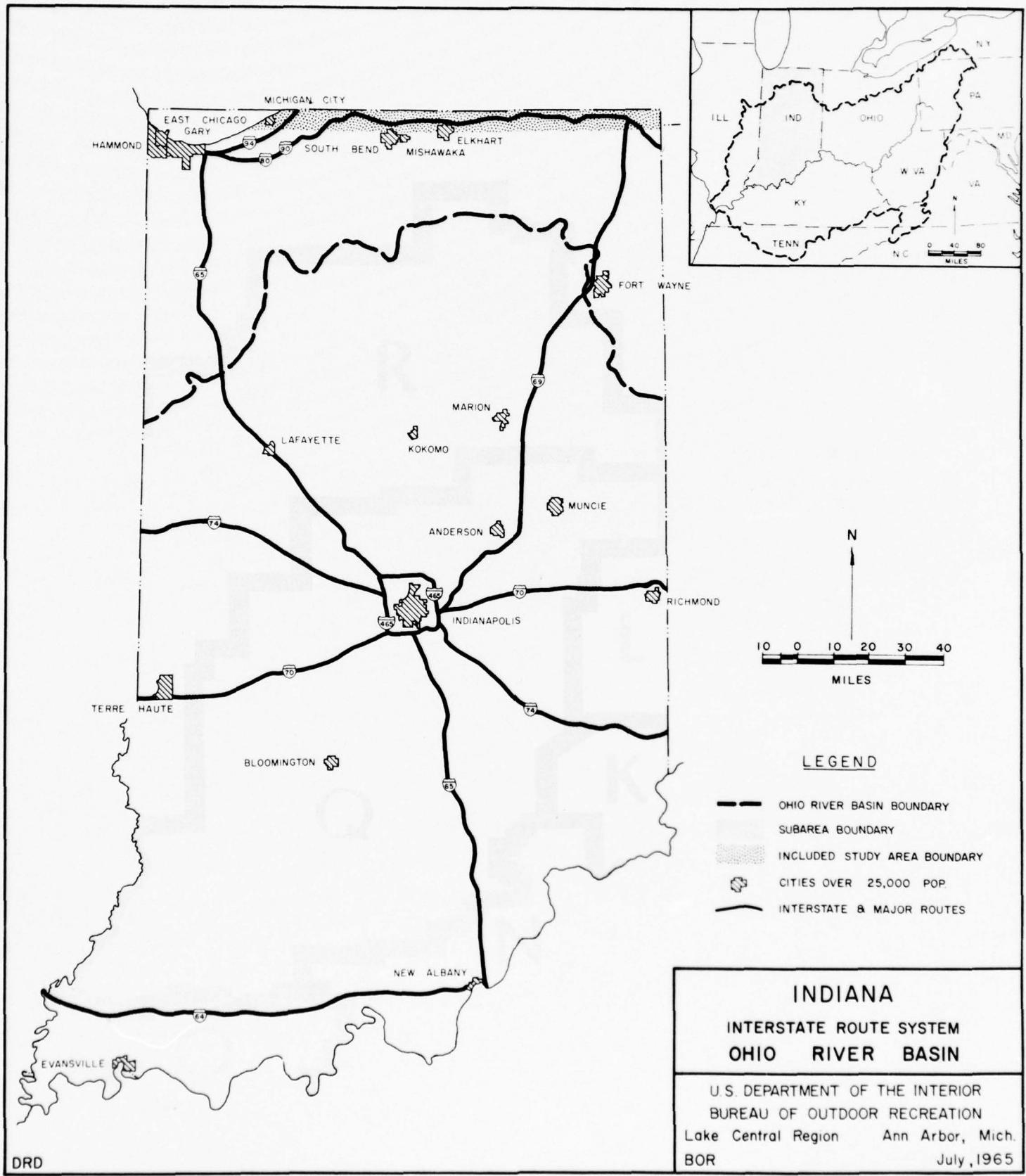


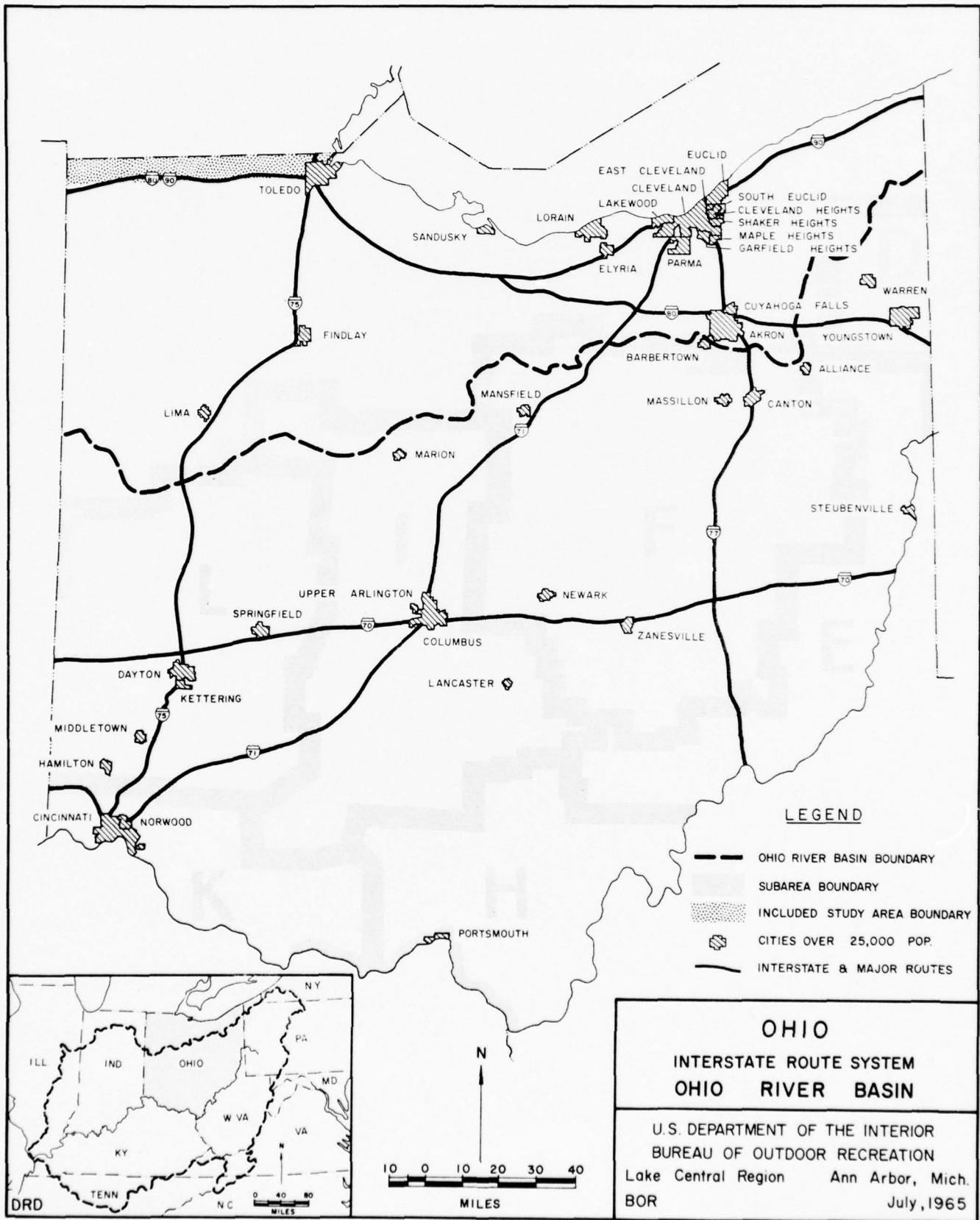
Plate I A

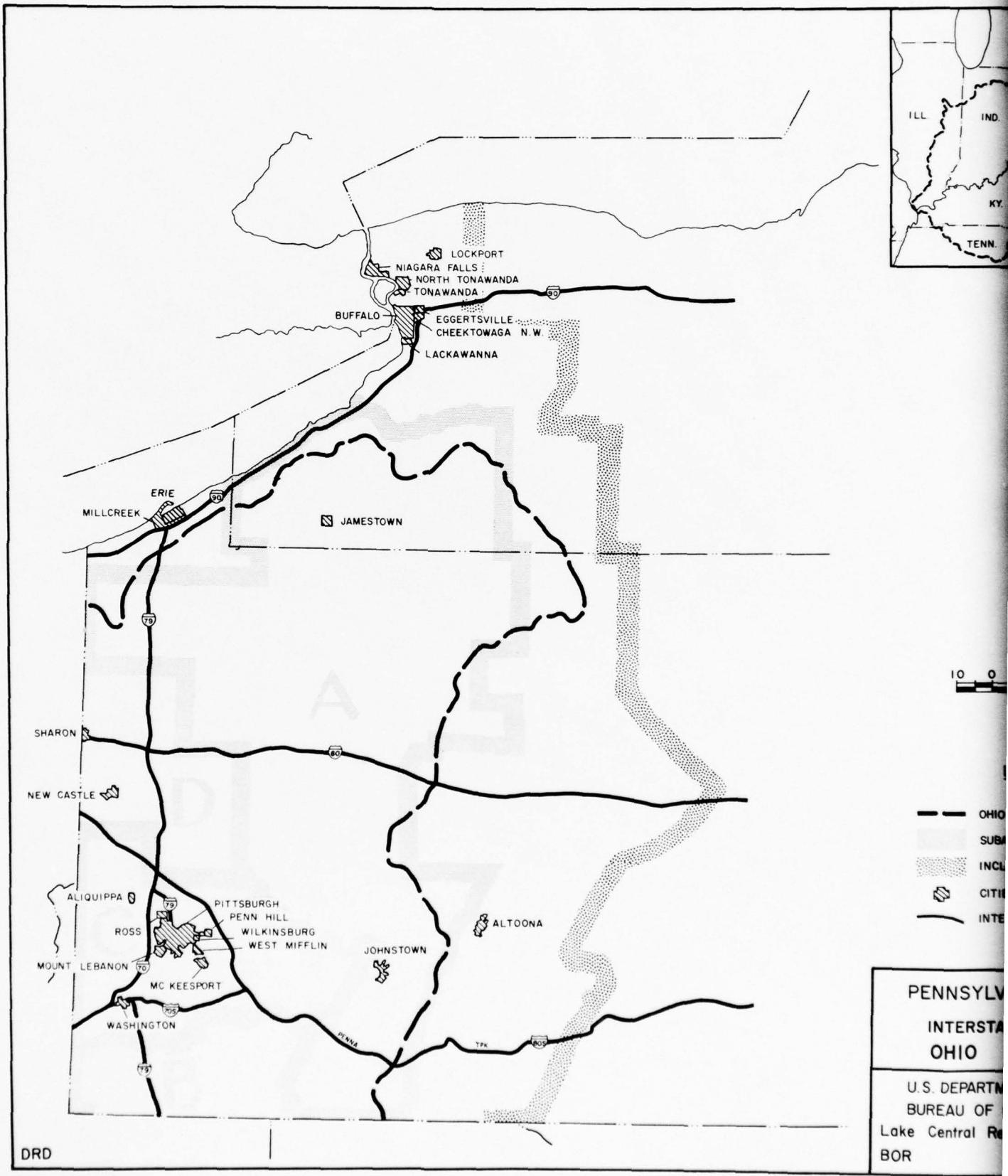












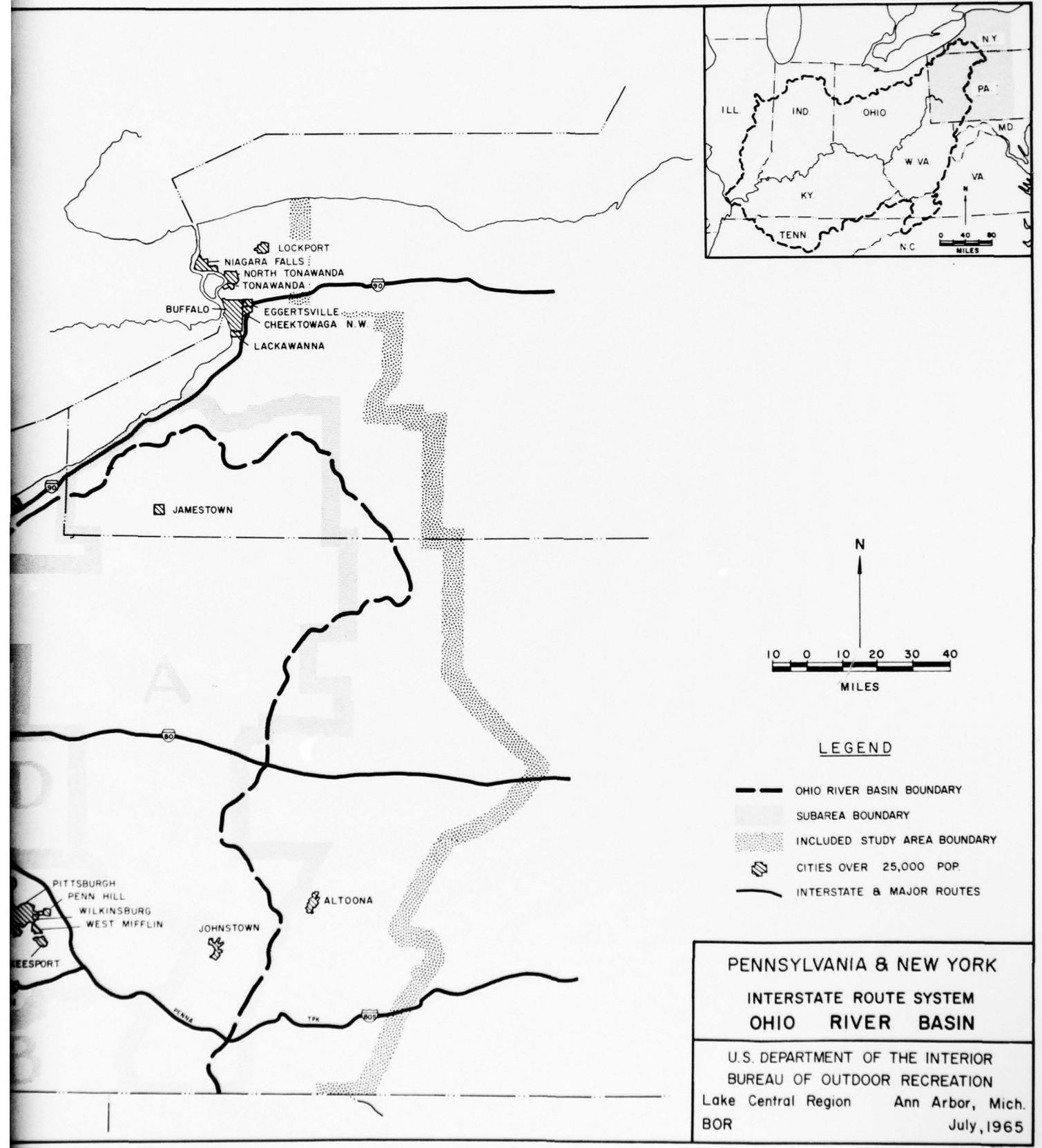
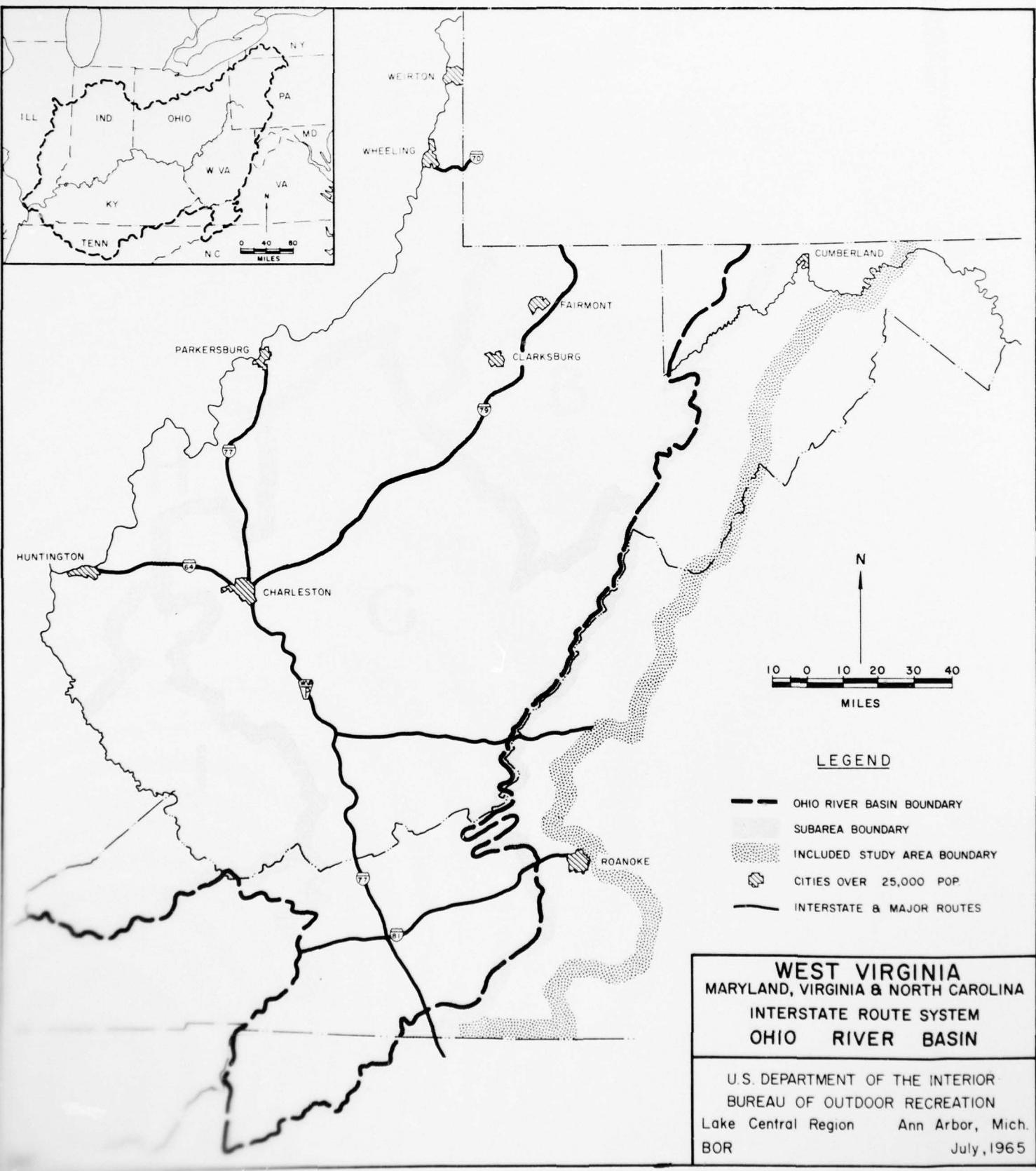
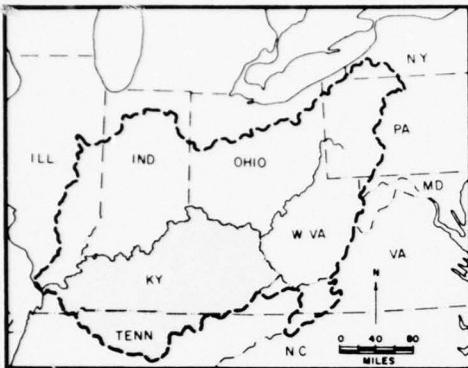


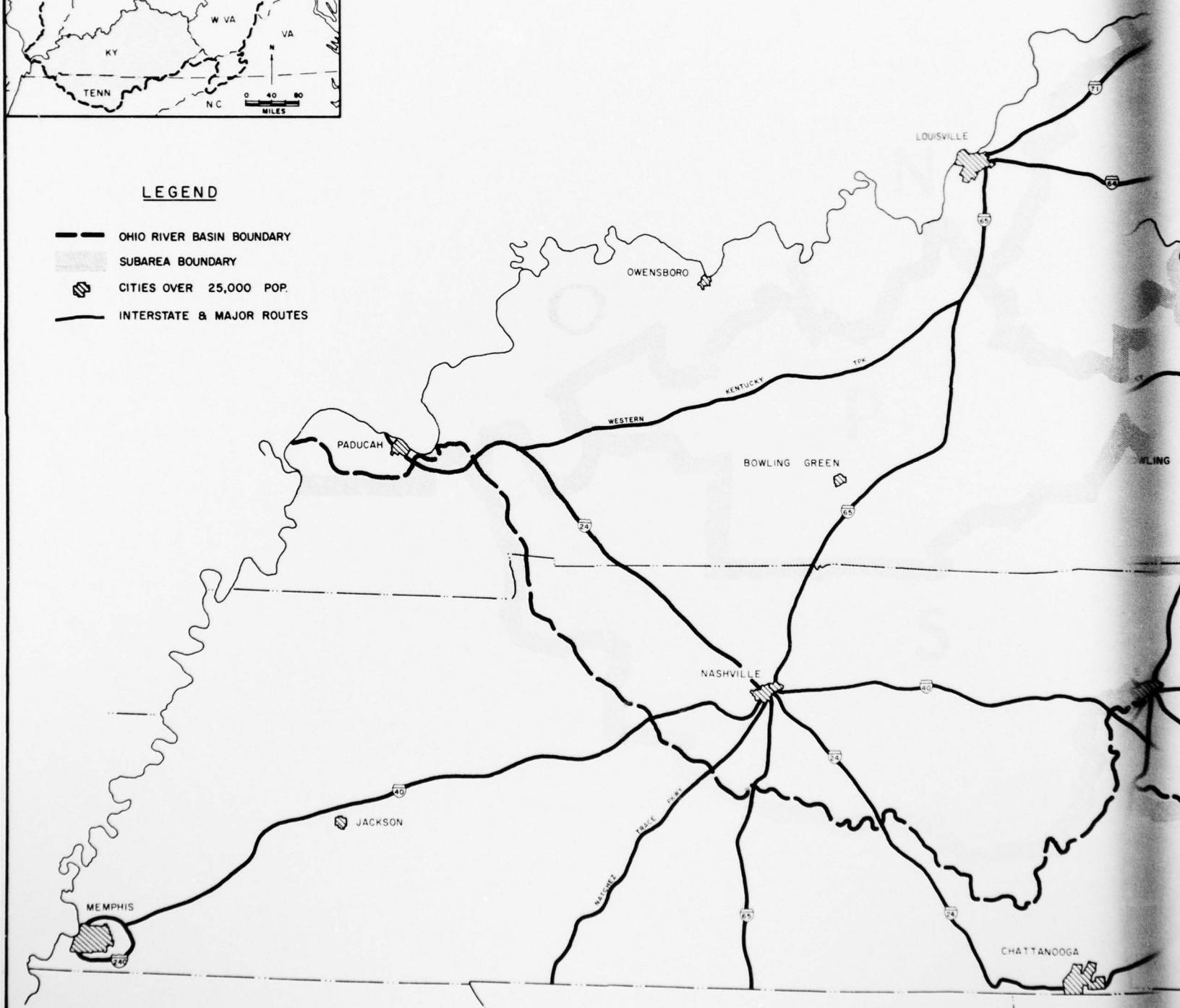
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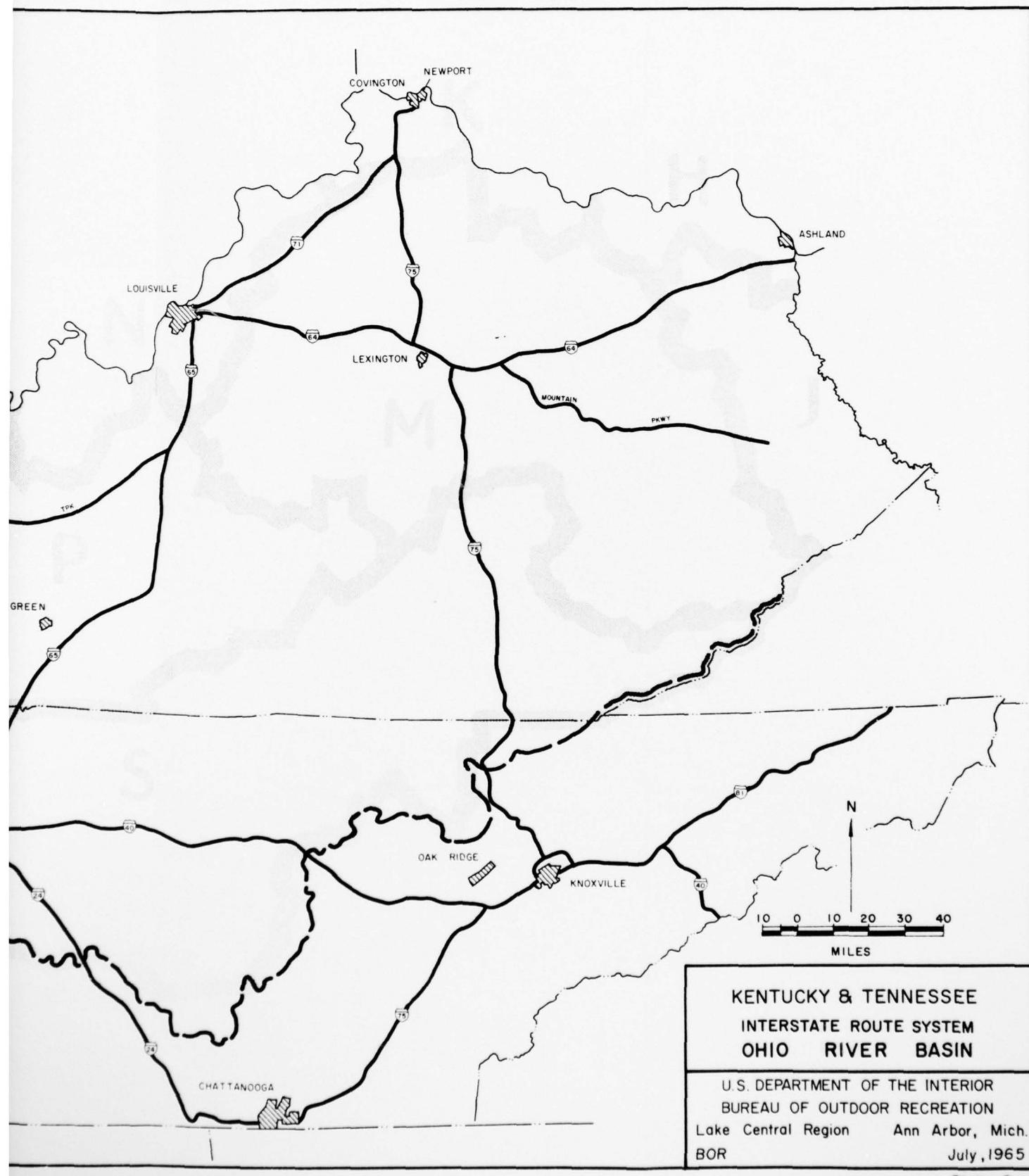


LEGEND

- OHIO RIVER BASIN BOUNDARY
- SUBAREA BOUNDARY
- ◆ CITIES OVER 25,000 POP.
- INTERSTATE & MAJOR ROUTES



DRD



KENTUCKY & TENNESSEE
INTERSTATE ROUTE SYSTEM
OHIO RIVER BASIN

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
Lake Central Region Ann Arbor, Mich.
BOR July, 1965

Plate 8

ILLINOIS

U.S. Forest Service

1. Pounds Hollow Recreation Area
2. Lake Glendale Recreation Area
3. Lincoln Memorial

U.S. Fish and Wildlife Service

4. Crane Orchard National Wildlife Area

State Parks

5. Dixon Springs
6. Fort Massac
7. Cave-in-Rock
8. Ferne Clyffe
9. Kaskaskia River
10. Lincoln Trail
11. Giant City
12. Tower Woods
13. Spring
14. Starved Rock
15. Buffalo Rock
16. Chain Lakes
17. Illinois New Salem
18. Kettlesnake State Park
19. Nature Area

State Recreation Areas

20. Fox Ridge
21. Kickapoo
22. Lake Murphyboro
23. Grand Marais
24. Chain Lakes
25. Kettle Cottages
26. Illinoian
27. Observation Parkway
28. Illinois Beach
29. Des Plaines

State Conservation Areas

30. Gulf Lake
31. Horseshoe Lake
32. Union
33. Woodford County
34. Marshall County
35. Monroe County
36. Franklin County
37. Chain Of Lakes
38. Jasper County
39. Hamilton County
40. Marion County
41. Saline County
42. Spring Branch
43. Washington County
44. Wayne County
45. Wimer Lake

State Forests

46. Shelby County
47. Union

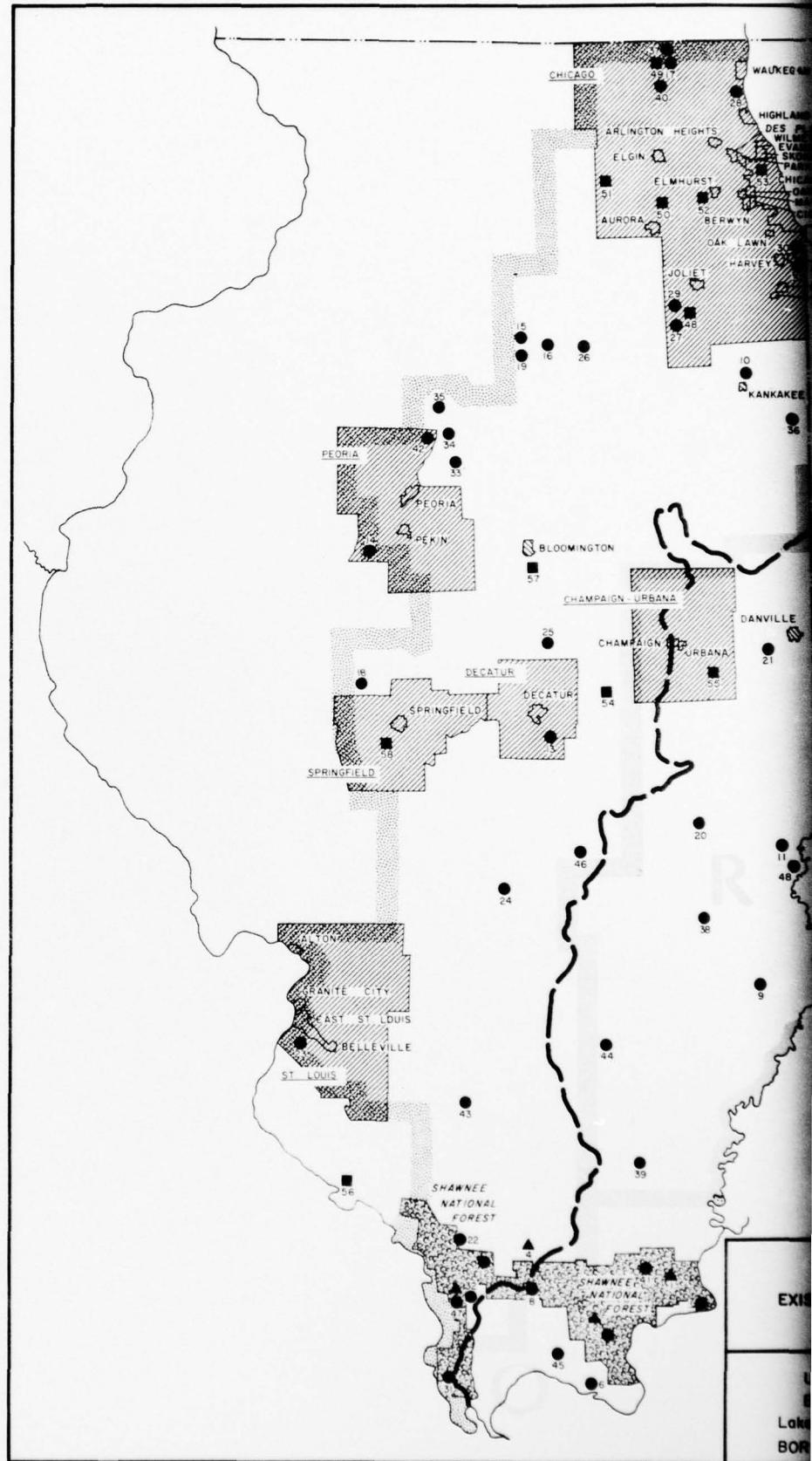
Local Areas

County Forest Preserves

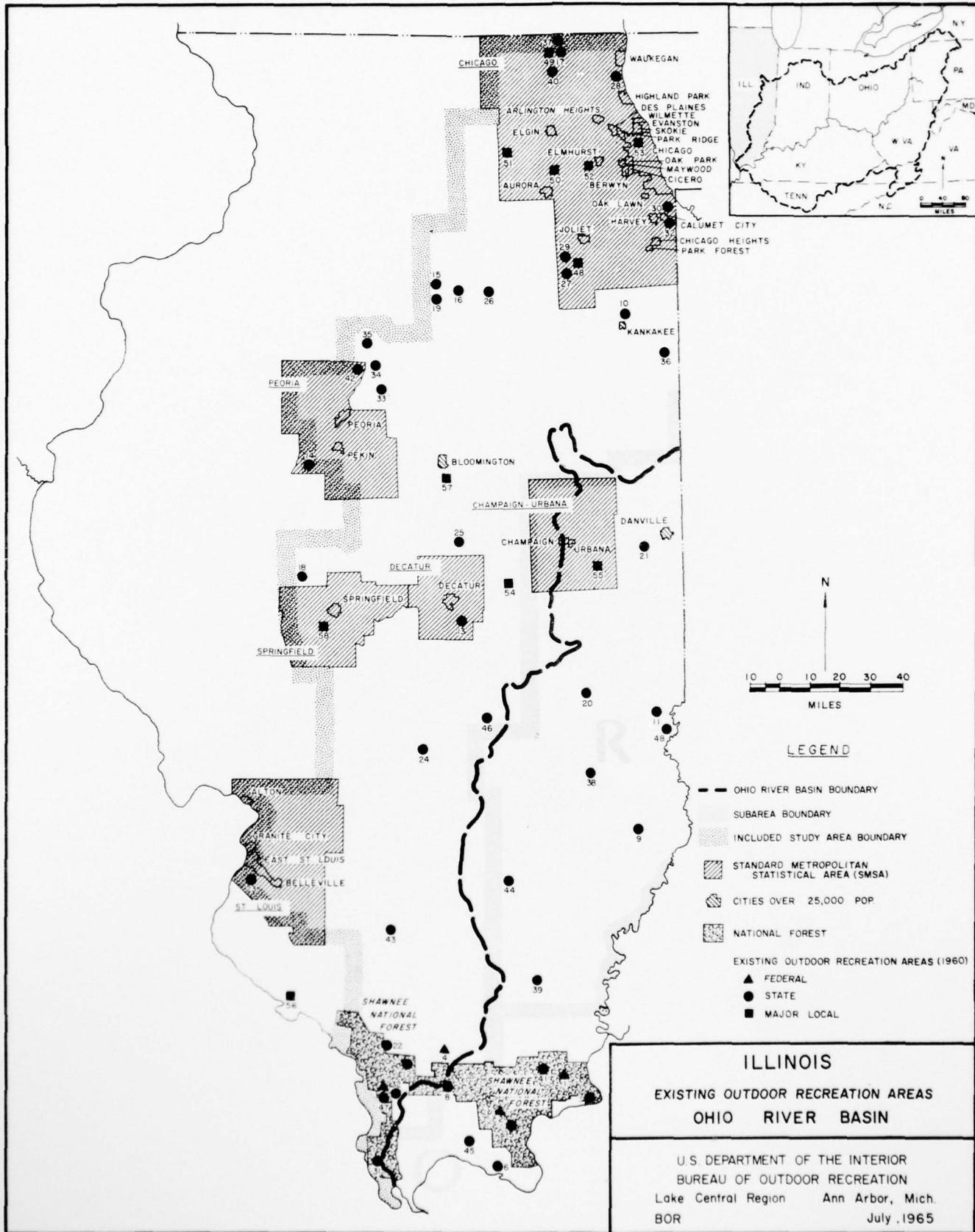
48. DuPage
49. Lake
50. Kane
51. DeKalb
52. DuPage
53. Lake
54. DeKalb
55. Champaign

Local Parks

56. Reservoir Park
57. Lake Wellington Park
58. Lake Springfield



ENF DRD

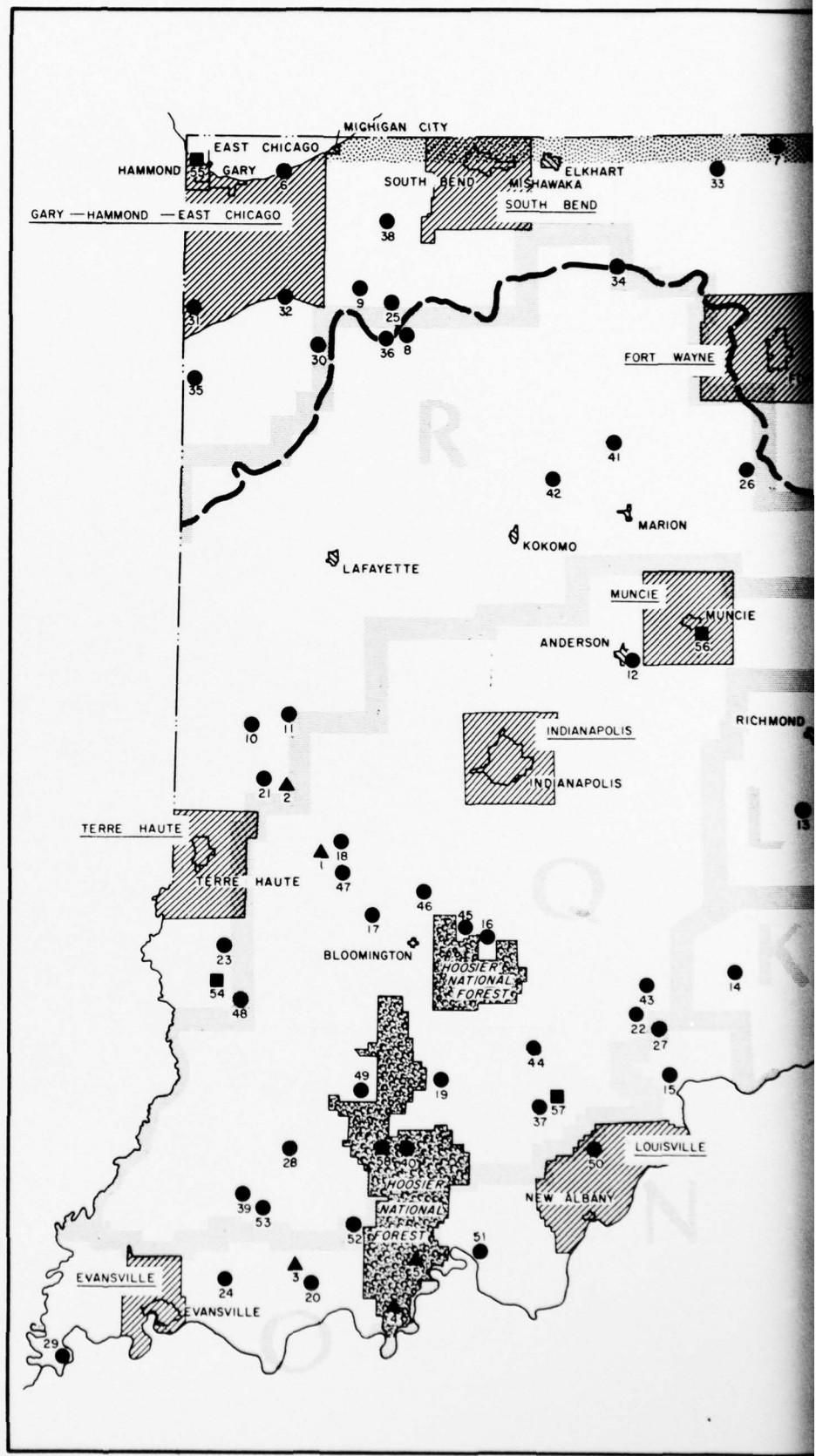


ENF DRD

Plate 9

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
Lake Central Region Ann Arbor, Mich.
BOR July 1965

- INDIANA**
- Corps of Engineers**
1. Cogles Mill Reservoir
 2. Mansfield Reservoir
- National Park Service**
3. Lincoln Boyhood National Monument
- U.S. Forest Service**
- Hoosier National Forest
 4. German Ridge Recreation Area
 5. Buzzard Roost Recreation Area
- State Parks**
6. Indiana Dunes
 7. Pokagon
 8. Tippecanoe River
 9. Konkakee
 10. Turkey Run
 11. Shades
 12. Mounds
 13. Whitewater
 14. Versailles
 15. Clifty Falls
 16. Brown County
 17. McCormick's Creek
 18. Lieber
 19. Spring Mill
 20. Lincoln
- State Recreation Areas**
21. Raccoon Lake
 22. Muscatatuck
 23. Shakamak
 24. Scales Lake
 25. Bass Lake
 26. Quabaches
- State Fish and Game Areas**
27. Crosley
 28. Glendale
 29. Hovey Lake
 30. Jasper-Pulaski
 31. Coon Marsh
 32. LaSalle
 33. Pigeon River
 34. Tri County
 35. Willow Slough
 36. Winamac
 37. Elk Creek
 38. Kingsbury
 39. Patoka
 40. Spring Valley
- State Forests**
41. Salmonie River
 42. Francis Slocum
 43. Selmer
 44. Jackson
 45. Yellowwood
 46. Morgan-Monroe
 47. Owen-Putnam
 48. Green-Sullivan
 49. Martin
 50. Clark
 51. Harrison-Crawford
 52. Ferdinand
 53. Pike
- Major Local Areas**
54. Sullivan County Park
 55. Wolf Lake
 56. Prairie Park
 57. Elk Creek
 58. French Lick Creek



ENF DRD

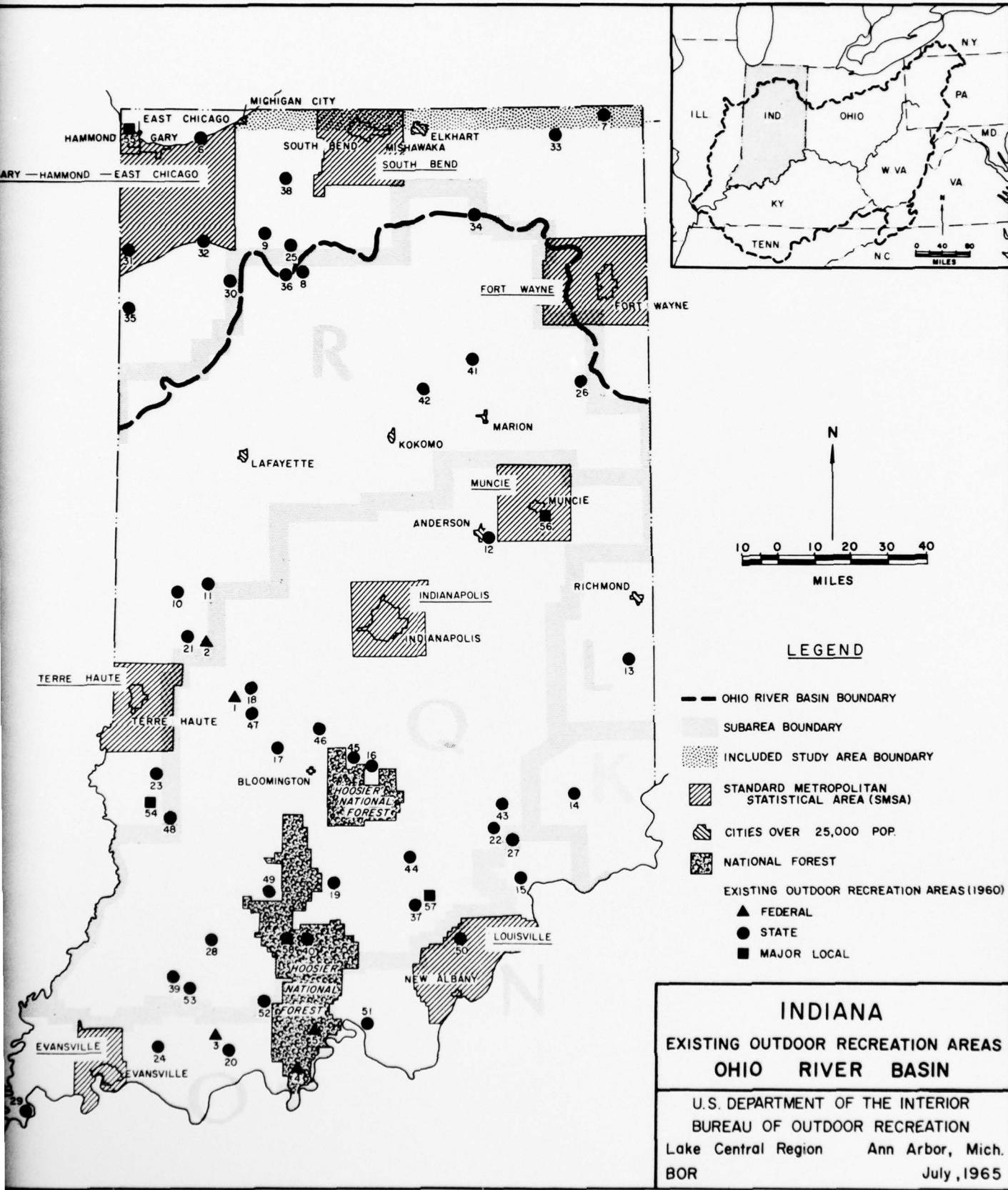


Plate 10

OHIO

Corps of Engineers

1. Berlin Reservoir
2. Delaware Reservoir
3. Mosquito Creek Reservoir
4. Tom Jenkins Reservoir
5. West Fork Reservoir

National Park Service

6. Perry's Victory and International Peace Monument
7. Mound City Group National Monument

U.S. Fish and Wildlife Service

8. West Sister Island National Wildlife Refuge

U.S. Forest Service

9. Vesuvius

State Parks and Recreation Areas

10. Findley State Park

11. Forked Run State Park

12. Lake Hope State Park

13. Jefferson Lake State Park

14. Lake Alma State Park

15. Madison Lake State Park

16. Mount Gilead State Park

17. Roosevelt State Park

18. Scioto Trail State Park

19. South Bass Island State Park

20. Strouds Run State Park

21. Lake White State Reserve

22. Van Buren Lake State Park

23. Tar Hollow State Park

24. A. W. Marion State Park

25. Clear Fork State Park

26. Burn Oak State Park

27. Buckeye Lake State Park

28. Beaver Creek State Park

29. Harrison Lake State Park

30. Cowan Lake State Park

31. Guilford Lake State Park

32. East Harbor State Park

33. John Bryan State Park

34. Hocking State Park

35. Hueston Woods State Park

36. Independence Day State Park

37. Indian Lake State Park

38. Kelly's Island State Park

39. Kiser Lake State Park

40. Lake Loramie State Park

41. Nelson-Kennedy State Park

42. Pike Lake State Park

43. Portage Lake State Park

44. Punderson Lake State Park

45. Rocky Fork State Park

46. St. Mary State Park

47. Stonelick Creek State Park

48. Adams Lake State Reserve

49. Bark Camp State Park

50. Blue Rock State Park

51. Catawba State Park

52. Big Creek State Reserve

53. Pymatuning State Park

54. Crane Creek State Park

55. Headlands State Park

State Forests

56. Wolf Run Area

57. Brush Creek

58. Blue Rock

59. Waterloo

60. Sunfish Creek

61. Shade River

62. Mohican Memorial

63. Yellow Creek

64. Maumee

65. Hocking

66. Richland Furnace

67. Pike

68. Tar Hollow

69. Scioto Trail

70. Shawnee

71. Zaleski

72. Raccoon

73. Dean

74. Chaplin

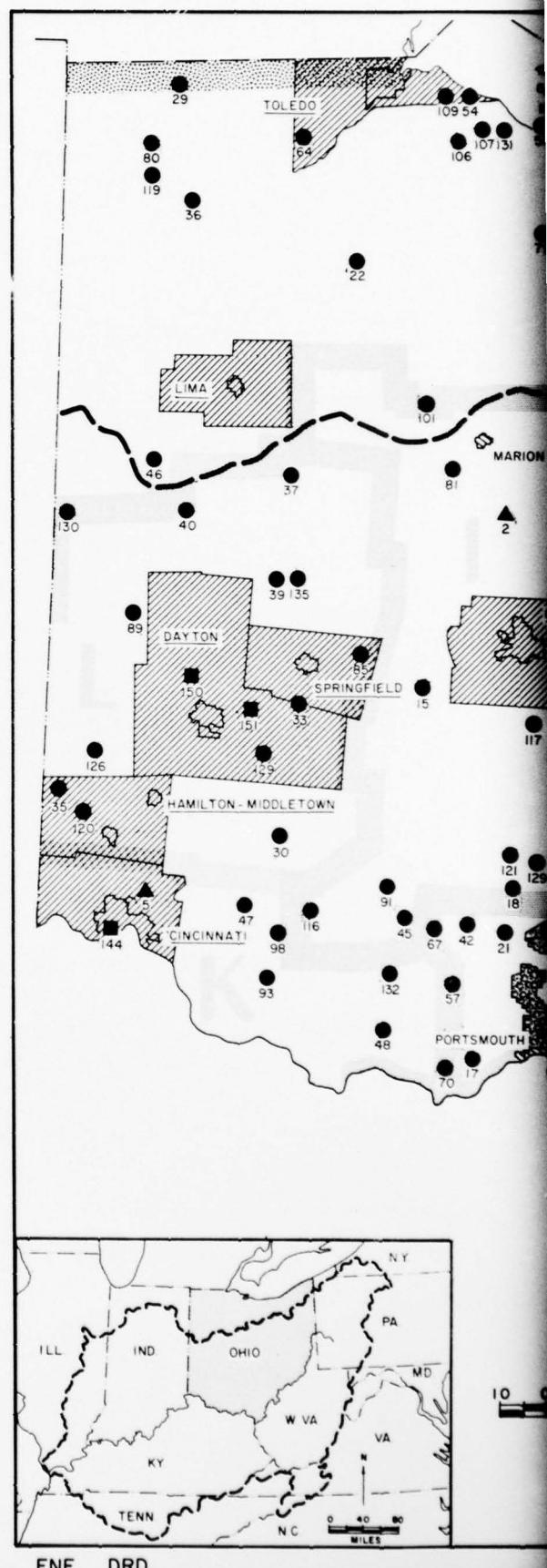
75. Gifford

State Fish and Wildlife Areas

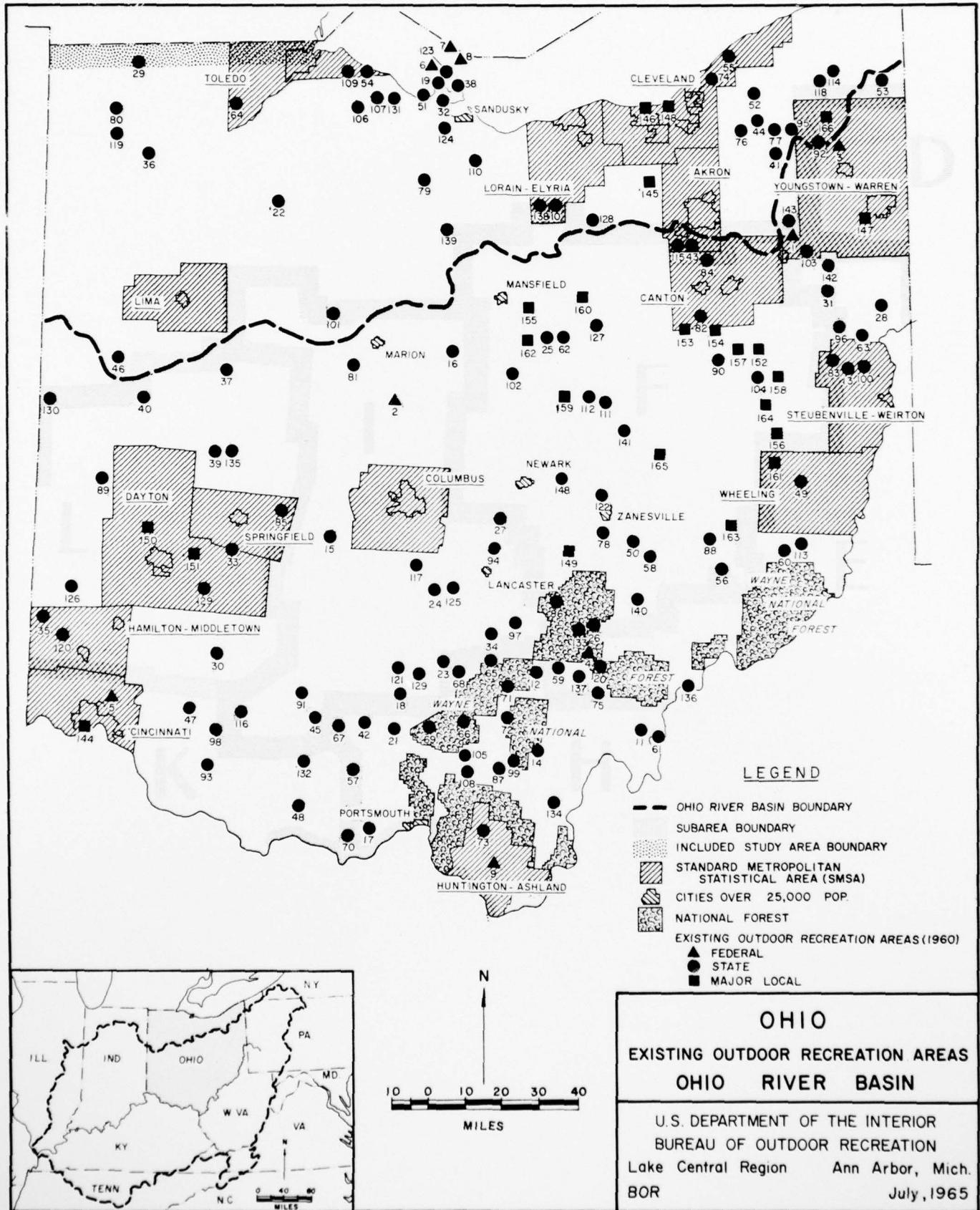
76. Aquilla Lake
77. Auburn Marsh
78. Avondale
79. Basic Incorporated
80. Beaver Creek
81. Big Island
82. Bolivar Reservoir
83. Brush Creek
84. Canal Fulton
85. Clark Lake
86. Clouse Lake
87. Coopers Hollow
88. Cumberl.
89. Darke Co. Lake
90. Dover
91. Fallsville
92. Grand River
93. Grand Lake
94. Greenfield Dam
95. Hamboon Orchard
96. Highlandtown
97. Hocking Lake
98. Indian
99. Jackson Lake St. Reserve
100. Kauk
101. Killdeer Plains
102. Knox Lake
103. Lake Park
104. Leesville
105. Liberty
106. Little Portage River
107. McGee Marsh
108. Mead
109. Metzger Marsh
110. Milan
111. Mohawk
112. Mohican River
113. Monroe Lake
114. New Lyme
115. Nimsillia Reservoir
116. Oldaker
117. Old Canal
118. Orwell
119. Oxbow Lake
120. Pater Lake
121. Pleasant Valley
122. Powelson
123. Put-in-Bay Hatchery
124. Rust Haven
125. Rock Mill Dam
126. Rush Run
127. Shreve Lake
128. Spencer Lake
129. Spring Valley
130. St. Mary's Lake
131. Tousantin Creek
132. Tranquility
133. Trible
134. Tycoon Lake
135. Urbana Game Farm
136. Vinton
137. Waterloo
138. Wellington
139. Willard Marsh
140. Wolf Creek
141. Woodbury
142. Zepernick Lake
143. Berlin Reservoir

Major Local Areas

144. Whinton Woods County Park
 145. Hinckley Reservation
 146. Rocky River Reservation
 147. Mill Creek Park
 148. Providence Park
 149. Perry County Reclamation Area
 150. Englewood Dam Park
 151. Huffman Dam Park
 152. Atwood Reservoir*
 153. Beach City Reservoir*
 154. Bolivar Reservoir*
 155. Charles Mills Reservoir*
 156. Clevelander Reservoir*
 157. Dover Reservoir*
 158. Leesville Reservoir*
 159. Mohawk Reservoir*
 160. Mohicanville Reservoir*
 161. Piedmont Reservoir*
 162. Pleasant Hill Reservoir*
 163. Senecaville Reservoir*
 164. Tappan Reservoir*
 165. Killis Creek Reservoir*
 166. Trumbull County Metropolitan Park
- *Muskingum Conservancy District



ENF DRD



NEW YORK

State Parks

1. Buckhorn Island
2. Lake Erie
3. Evansola
4. Niagara Reservation
5. Devil's Hole
6. Whirlpool
7. Beaver Island
8. Cuba Reservation
9. Allegany

State Forests

10. Chautauqua Reforestation
11. Cattaraugus Reforestation
12. Allegany Reforestation

State Fish and Game Areas

13. Carlton Hill

PENNSYLVANIA

Corps of Engineers

14. East Branch Clarion Reservoir
15. Tionesta Reservoir
16. Alvin R. Bush Reservoir
17. Youghiogheny River Reservoir
18. Mahoning Creek Reservoir
19. Crooked Creek Reservoir
20. Conemaugh River Reservoir
21. Loyalhanna Reservoir

National Park Service

22. Fort Necessity Battlefield

U.S. Fish and Wildlife Service

23. Erie National Wildlife Refuge

U.S. Forest Service

Allegheny National Forest

Recreation Areas

24. Maple Run
25. Cordroy
26. Pipe Bridge
27. Twin Lakes
28. Red Creek
29. Cordroy
30. Lolets
31. Springer Run
32. Underman's Corners
33. Golden Senn
34. Greely Farm
35. Gwin Mine
36. Kelley Pines
37. Watson Run
38. Amherst
39. Blue Jay
40. Hill Farm
41. Porter Farm Spring
42. Porter Farm
43. Glasser Run
44. Hoffman Farm
45. Camp Clemoad
46. Camp Cornplanter
47. Camp Run
48. Red Bridge
49. Lewis Run
50. Kennedy Springs
51. Jakes Rocks
52. Allegheny Picnic
53. Duckarpoons
54. Hearts Content
55. Minister Creek
56. Morrison Run
57. Sandstone Springs
58. Camp Wissell

County Units

59. Elk County
60. Forest County
61. McKean County
62. Warren County

State Parks

63. Kooser
64. Laurel Mountain
65. Lime Run
66. Keystone
67. Crooked Creek
68. Raccoon Creek
69. Laurel Hill
70. McConnells Mill
71. Pymatuning
72. Bendigo
73. Chapman Dam
74. Cook Forest
75. Clear Creek
76. S. B. Elliott
77. Parker Dam
78. Sinnemahoning
79. Sizerville
80. Ravensburg
81. Bucktail
82. Hyner Run
83. Kettle Creek
84. Ole Bull
85. Lyman Run
86. Denton Hill
87. Presque Isle
88. Black Moshannon
89. Blue Knob
90. Trough Creek
91. Warrior's Path
92. Shamree
93. Poe Valley
94. Whipple Dam
95. Greenwood Furnace
96. Cowan's Gap

State Forests

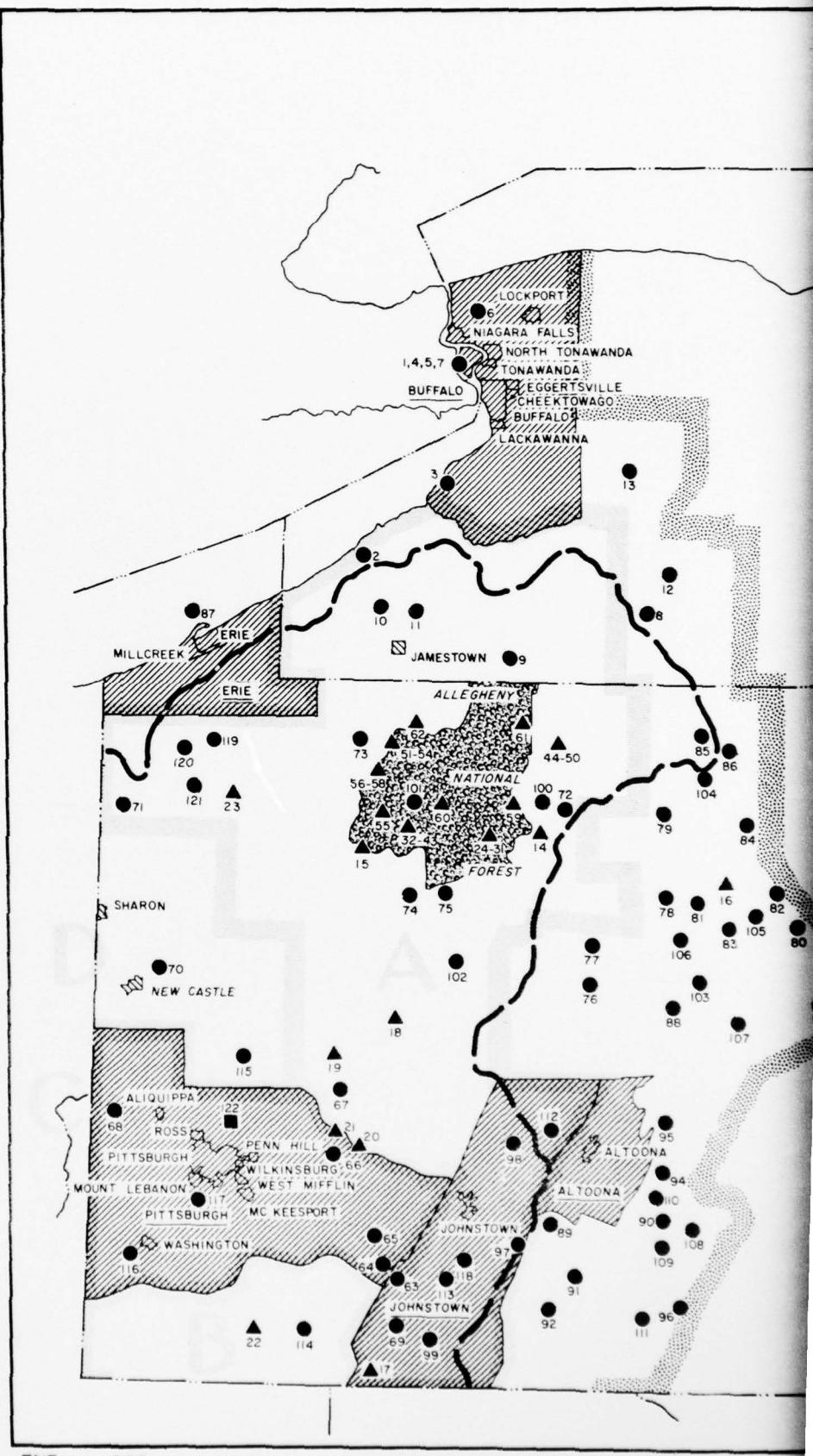
97. Forbes
98. Gallitzin
99. Mount Davis
100. Elk
101. Corn Planter
102. Kittanning
103. Black Moshannon
104. Susquehannock
105. Spruce
106. Bald Eagle
107. Bear Readers
108. Detweller Run
109. Alan Seeger
110. Rothrock
111. Buchanan

State Fish Commission

- ##### Recreation Areas
112. Duman Dam
 113. Lake Somerset
 114. Spring Run Lake
 115. Glade Run Lake
 116. Dutch Fork Lake
 117. Cannonsburg Lake
 118. Cranberry Ridge Lake
 119. Drakes Hill Dam
 120. Cedarbridge Farms
 121. Madison Access

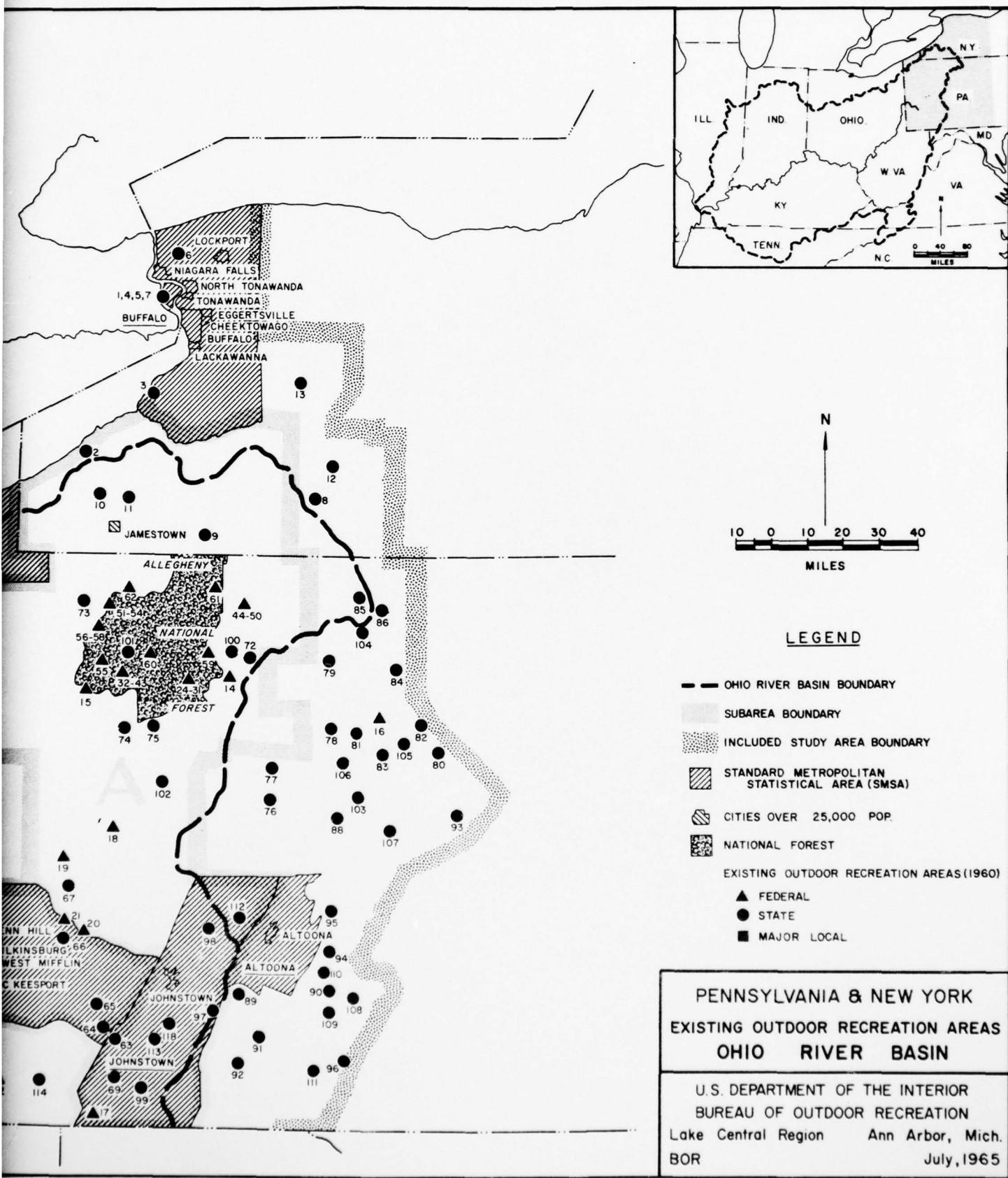
Allied County Park Department

122. North Park



ENF

DRD



PENNSYLVANIA & NEW YORK
EXISTING OUTDOOR RECREATION AREAS
OHIO RIVER BASIN

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
Lake Central Region Ann Arbor, Mich.
BOR July, 1965

Plate 12

WEST VIRGINIA

Corps of Engineers

1. Sutton Reservoir
2. Tygart Reservoir
3. Gallipolis Lock and Dam
4. Bluestone Reservoir

U.S. Forest Service

5. George Washington National Forest
6. Monongahela National Forest

State Parks

7. Tygart Lake
8. Babcock
9. Tomlinson Run
10. Mont Chateau
11. Cathedral
12. Blackwater Falls
13. Watters Smith
14. Audra
15. North Bend
16. Hawk's Nest
17. Cedar Creek
18. Holly River
19. Carnifex Ferry
20. Droop Mountain
21. Watoga
22. Grandview
23. Pinnacle Rock
24. Bluestone

State Forests

25. Cabwaylingo
26. Greenbrier
27. Kumbraw
28. Seneca
29. Calvin Price
30. Camp Creek
31. Coopers Rock
32. Kanawha
33. Panther Creek

State Fish and Game Areas

34. Bluestone
35. Elk River
36. Bear Rocks
37. Tater Creek Lake
38. Pleasant Creek
39. Hump
40. McClintic
41. Chief Cornstalk
42. Plum Orchard
43. Laurel Creek

Major Local Areas

44. Oglebay Park
45. Coonskin Park
46. Camp Mad Anthony Wayne
47. Little Beaver

VIRGINIA

Corps of Engineers

48. Philipps Reservoir

National Park Service

49. Booker T. Washington
50. Blue Ridge Parkway
51. Smart View
52. Mabry Mill
53. Rocky Mount

U.S. Forest Service

54. Jefferson National Forest
55. George Washington National Forest

State Parks

56. Fairy Stone
57. Douthat
58. Clayton Lake

Wildlife Area

59. Gathright

NORTH CAROLINA

National Park Service

U.S. Forest Service

State Parks

MARYLAND

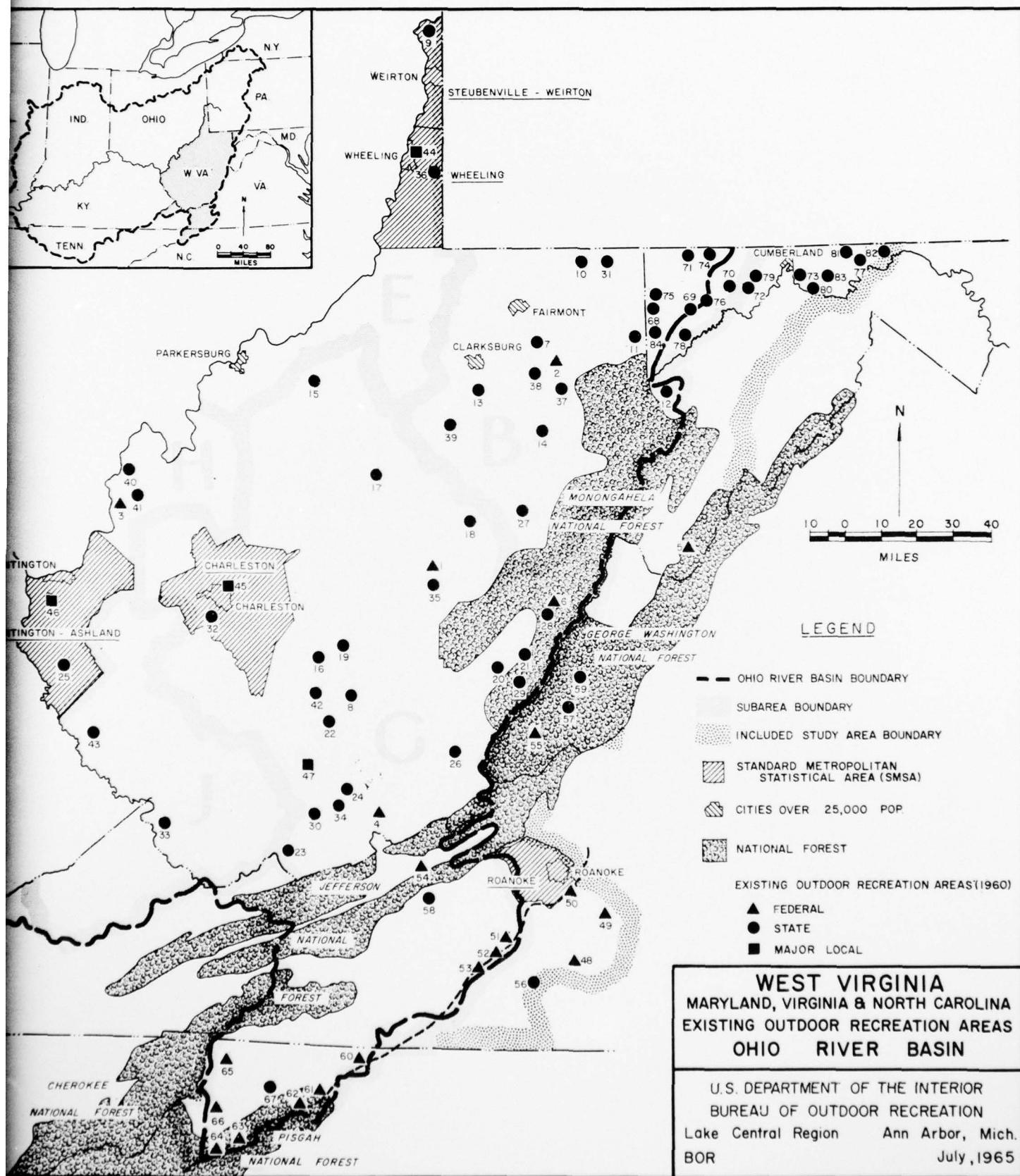
State Parks and Recreation Areas

State Forests

State Game and Fisheries Areas



ENF DRD



Corps of Engineers

1. Buckhorn Reservoir
2. Little Cumberland (Wolf Creek Dam)
3. Dewey Reservoir

National Park Service

4. Mammoth Cave National Park
5. Cumberland Gap National Historical Park
6. Abraham Lincoln Birthplace National Historic

U.S. Fish and Wildlife Service

7. Kentucky Woodland National Wildlife Refuge

U.S. Forest Service

8. Cumberland National Forest
9. Jefferson National Forest

State Parks

10. Pine Mountain
11. Big Bone Lick
12. General Butler
13. Carter Caves
14. Pennyrile Forest
15. Jonesville
16. Greenbo Lake
17. Audubon
18. Levi Jackson Wilderness
19. My Old Kentucky Home
20. Natural Bridge
21. Lake Cumberland
22. Cumberland Falls

Breaks Interstate Commission

23. Breaks Interstate

State Forests

24. Olympia
25. Kentucky Ridge
26. Knobs
27. Tygarts
28. Kentonia
29. Dewey Lake
30. Pennyrile

State Fish and Wildlife Areas

31. Beaver Creek Lake
32. Jones-Kenney Game Management Area
33. Lake Beshear
34. Carpenter Lake
35. Old Kingfisher - New Kingfisher
36. Robinson Forest
37. Elliott County Sportsmen Lake
38. Franklin County Game Area
39. Boltz Lake
40. Marion River Lake
41. Williamson Lake
42. Henderson Wildlife Area
43. Henry County Rod and Gun Club Lake
44. Relevee Lake
45. Mullins Wildlife Management Area
46. Pine Mountain Game Area
47. Central Kentucky Management Area
48. Marion County Sportsman Lake
49. Mud River No. 51
50. Lake Washburn
51. Elmer Davis Lake
52. Kiefer Sanctuary
53. Lake Malone
54. Pulaski County Lake
55. Gulf Creek Lake
56. Taylor County Sportsman Lake
57. Shanty Hollow Lake

Major Local Areas

58. North Fork Little River No. 5

TENNESSEE

Corps of Engineers

1. Center Hill Reservoir
2. Cheatham Reservoir
3. Dale Hollow Reservoir
4. Old Hickory Reservoir

National Park Service

5. Natchez Trace Parkway
6. Fort Donelson National Military Park
7. Fort Donelson National Cemetery
8. Stones River National Battlefield
9. Stones River National Cemetery

State Parks

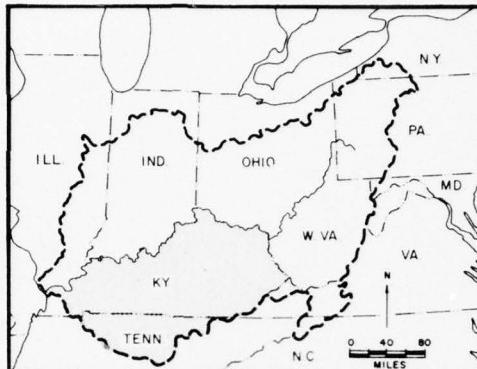
10. Cedars of Lebanon
11. Falls Creek Falls
12. Standing Stone
13. Montgomery Bell
14. Pickett

State Forests

15. Stewart
16. Scott

State Fish and Game Areas

17. Cheatham Reservoir
18. Old Hickory Reservoir
19. Cheatham Wildlife Area
20. Burgess Falls
21. Marrowbone Lake



LEGEND

— OHIO RIVER BASIN BOUNDARY

SUBAREA BOUNDARY

[Dotted Pattern] INCLUDED STUDY AREA BOUNDARY

[Hatched Pattern] STANDARD METROPOLITAN STATISTICAL AREA (SMSA)

[Circle with dot] CITIES OVER 25,000 POP.

[Forest Pattern] NATIONAL FOREST

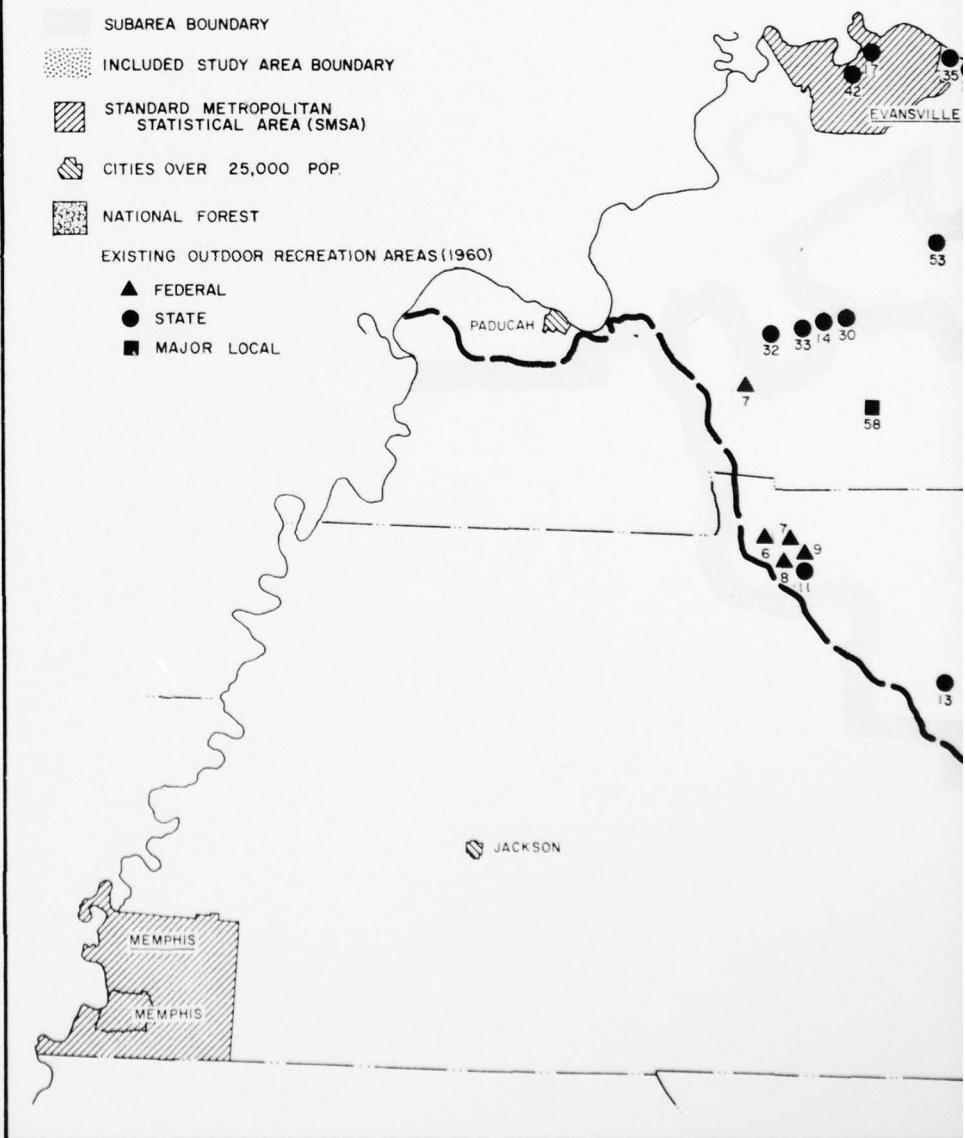
EXISTING OUTDOOR RECREATION AREAS (1960)

▲ FEDERAL

● STATE

■ MAJOR LOCAL

JACKSON



AD-A041 277

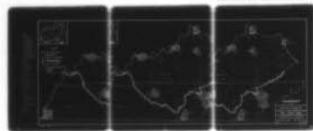
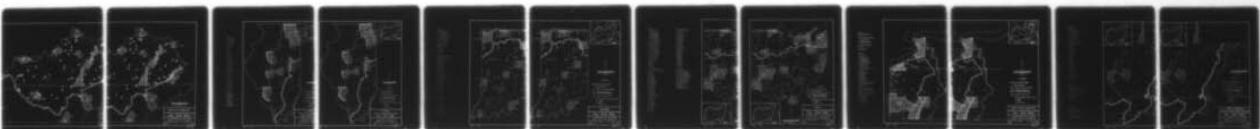
ARMY ENGINEER DIV OHIO RIVER CINCINNATI
OHIO RIVER BASIN COMPREHENSIVE SURVEY. VOLUME IX. APPENDIX H. 0--ETC(U)
JUN 66

F/G 8/6

NL

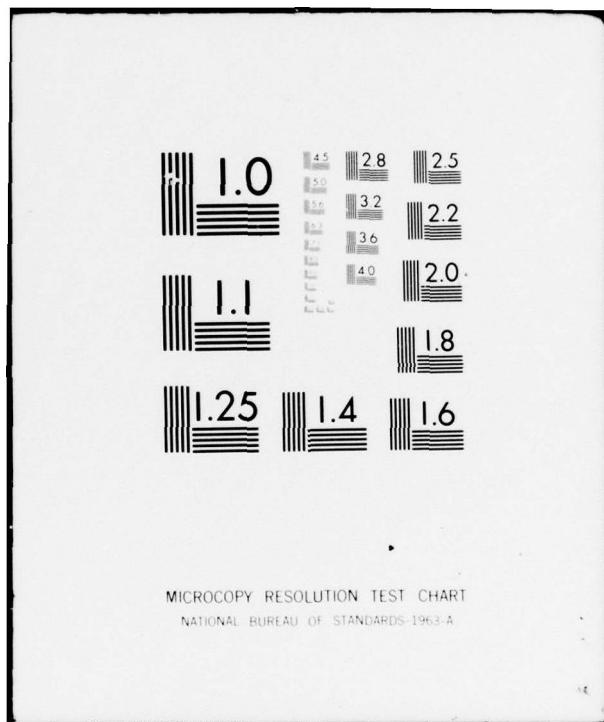
UNCLASSIFIED

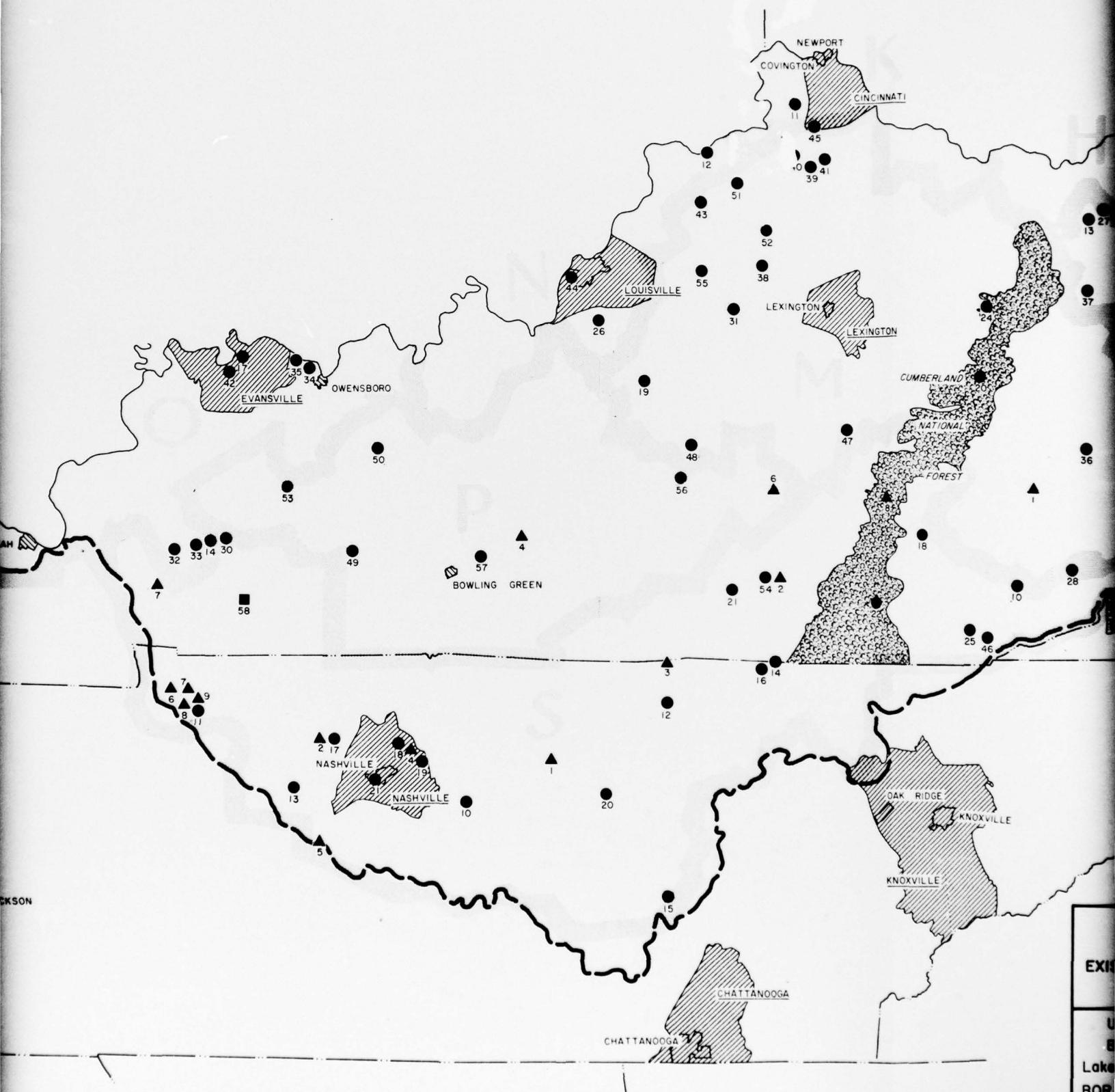
3 OF 3
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A041277



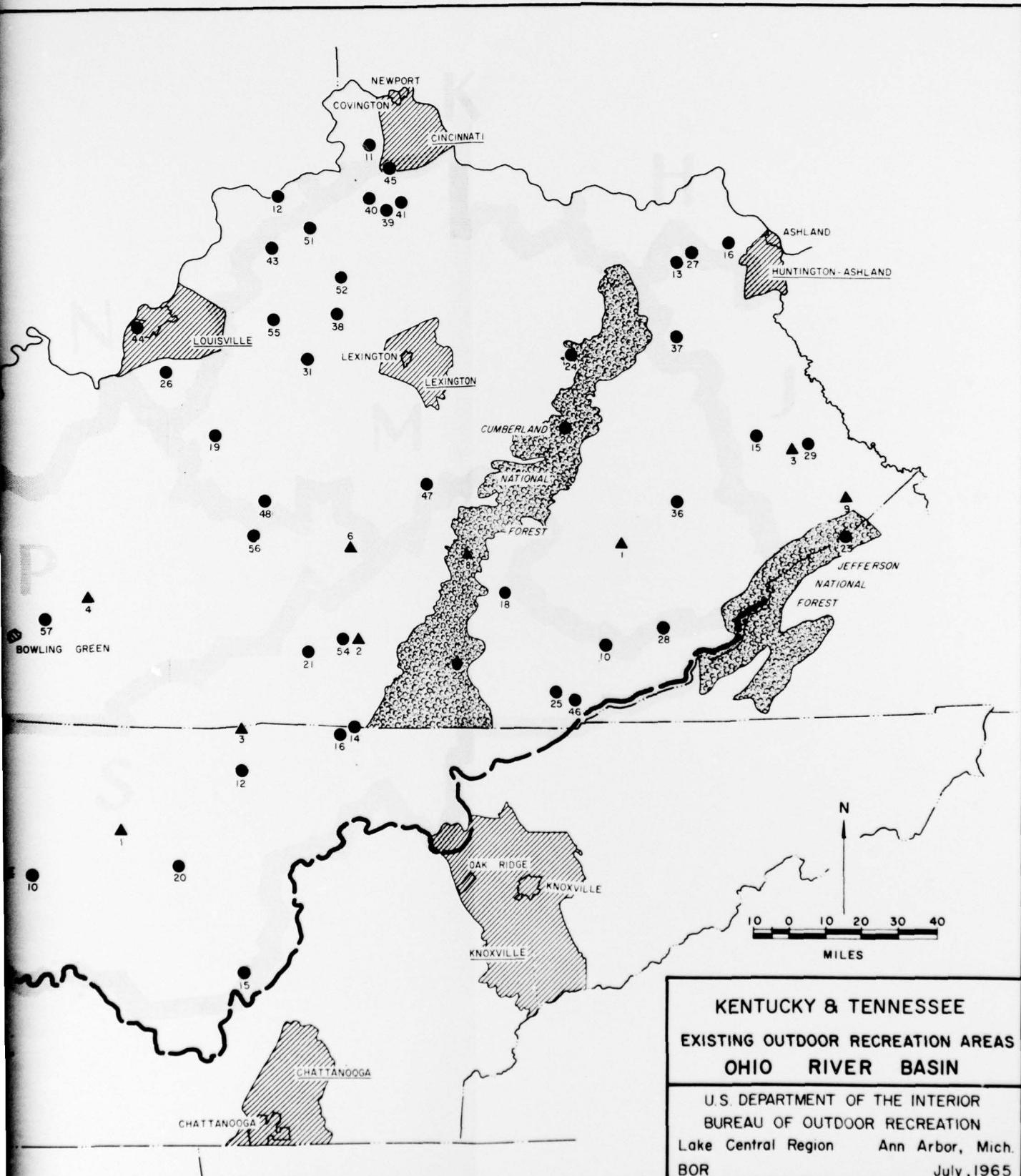
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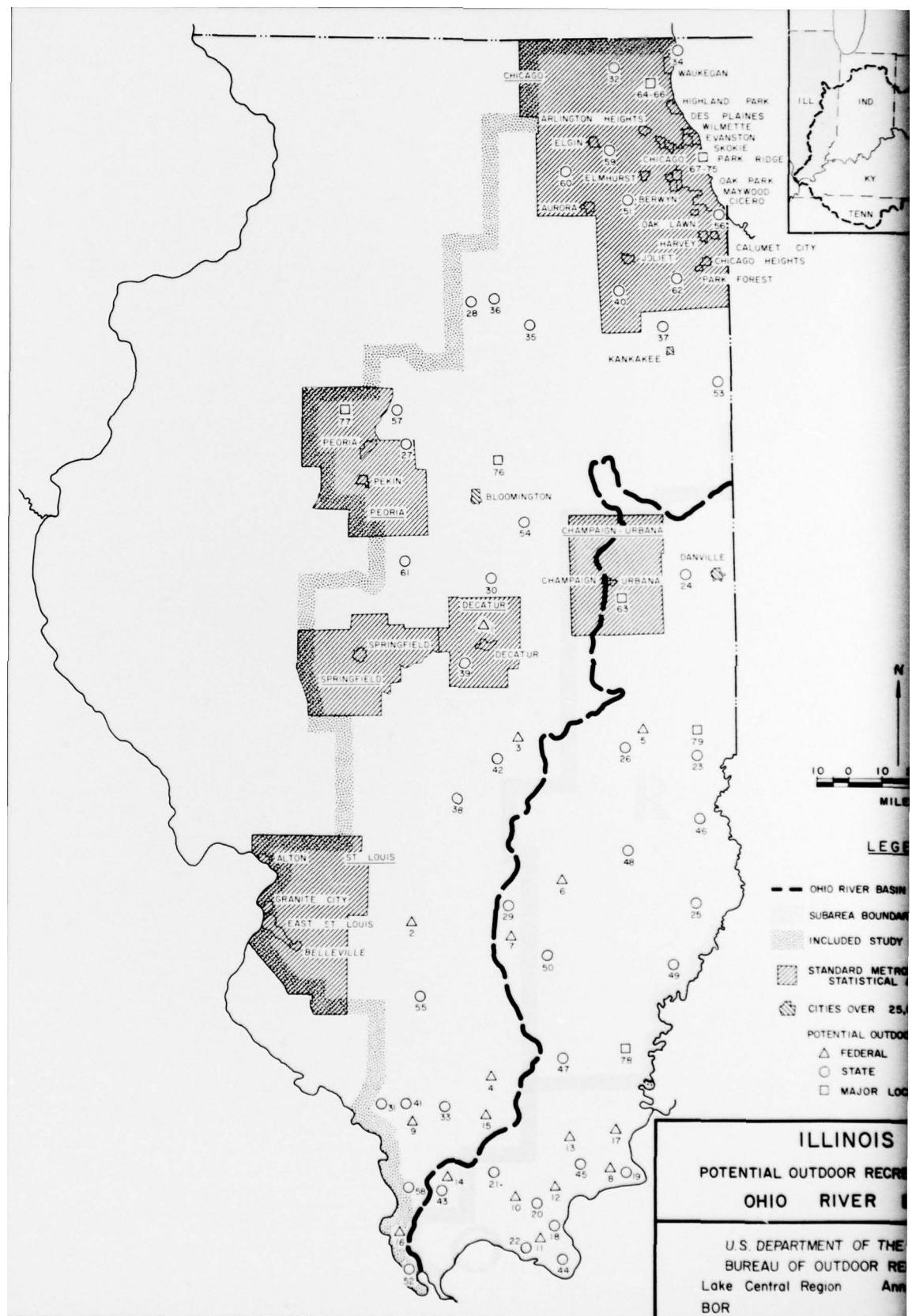
DATE
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7-77

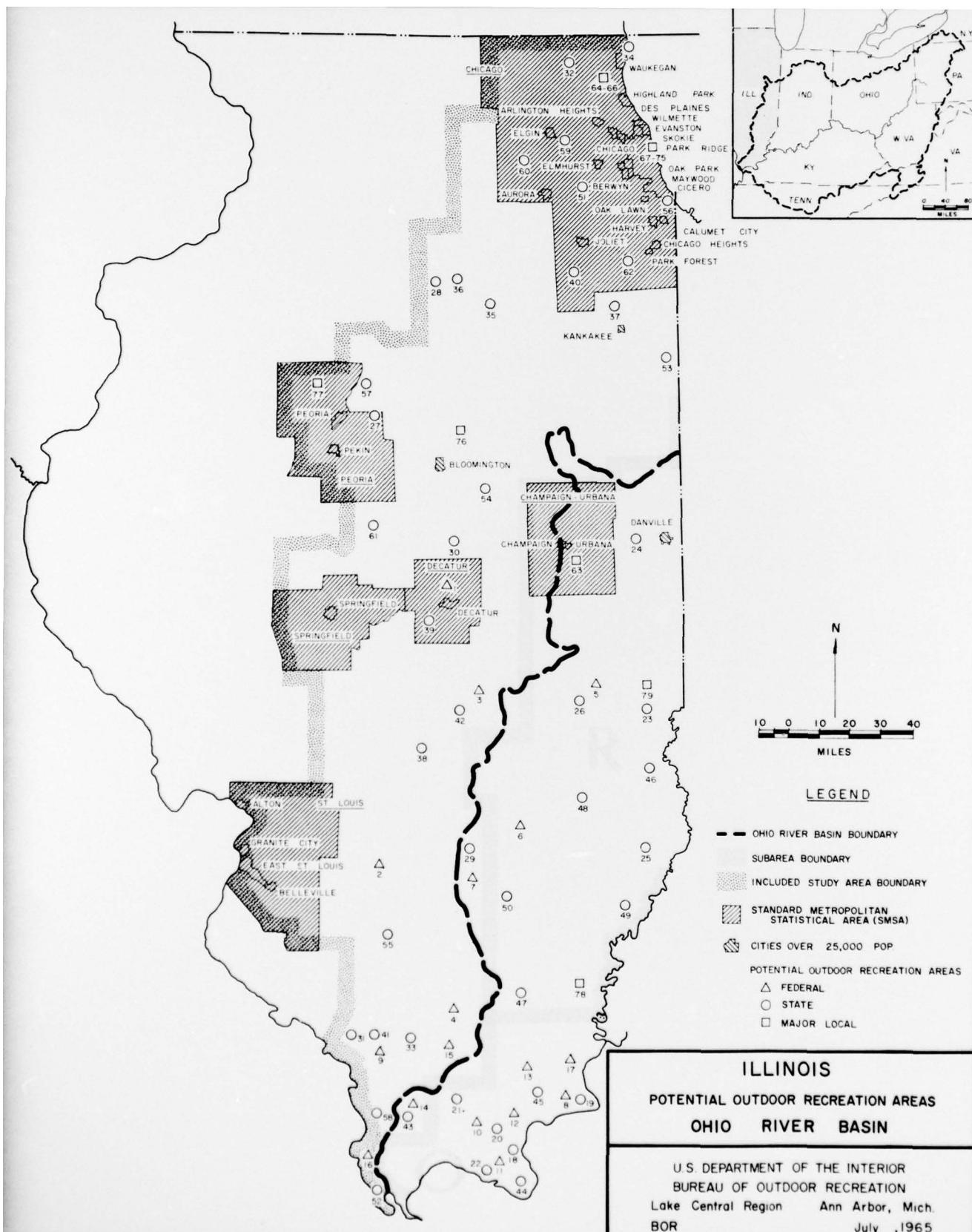




EXI
U
E
Lake
BOR







INDIANA

Corps of Engineers

1. Huntington Reservoir
2. Salamonie Reservoir
3. Mississinewa Reservoir
4. Patoka Reservoir
5. Clifty Creek Reservoir
6. Big Pine Reservoir
7. Bridger Creek Reservoir
8. Big Walnut Creek Reservoir
9. Downeyville Reservoir
10. Big Blue Reservoir
11. Brookville Reservoir
12. Monroe Reservoir
13. Newmark Reservoir

U.S. Forest Service

Roosevelt National Forest:

- County Units
14. Brown
 15. Crawford
 16. Dubois
 17. Jackson
 18. Lawrence
 19. Martin
 20. Monroe
 21. Orange
 22. Perry

State Parks and Recreation Areas

23. Pigeon Lake
24. Quabbin
25. McCormick's Creek
26. Shakamak
27. Pokagon
28. Chain O'Lakes
29. Tippecanoe River
30. Indiana Dunes
31. Spring Hill
32. Lincoln
33. Versailles
34. Raymetown Peninsula
35. Fairfax Peninsula
36. Turkey Run

State Forests

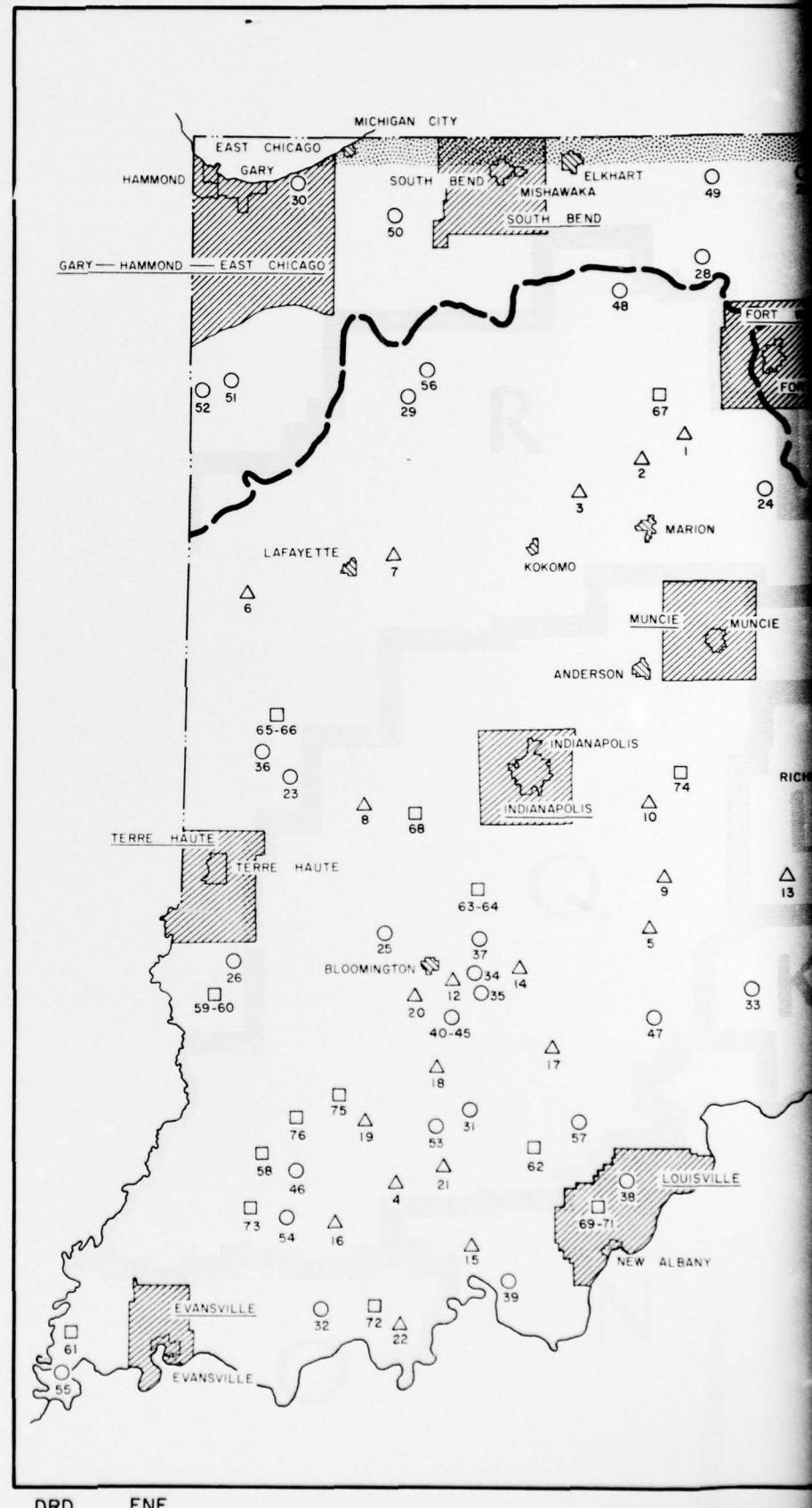
37. Yellowwood
38. Clark
39. Harrison

State Fish and Game Areas

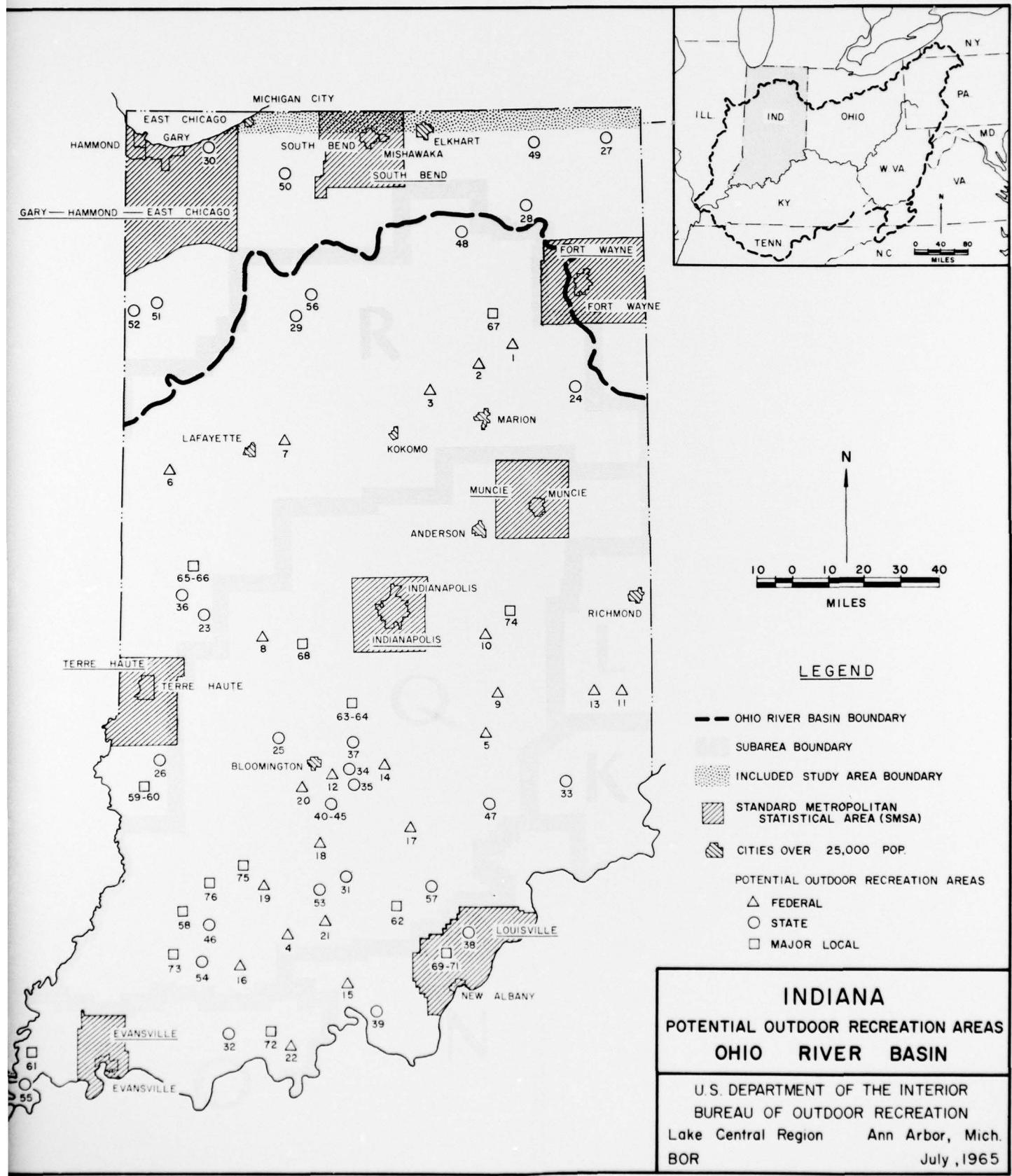
40. Moore Creek
41. Pine Grove
42. Creek Creek
43. Aspin Branch
44. Cutright Branch
45. Atter's Creek
46. Glendale
47. Crossley
48. Tri-County
49. Pigeon Flyer
50. Kinsbury
51. Lafferty
52. Willow Branch
53. Spring Valley
54. Patoka
55. Heavy Lake
56. Wimico
57. Elk Creek

Major Local Areas

- Determined Conservation Districts:
58. Alton Creek
 59. Casson Creek
 60. Casson Creek
 61. Elm Creek
 62. Gobey Creek
 63. Indian Creek
 64. Indian Creek
 65. Little Cannon
 66. Little Cannon
 67. Little River
 68. Mill Creek
 69. Noddy Creek
 70. Noddy Creek
 71. Noddy Creek at Anderson
 72. Noddy Creek
 73. River Mill
 74. West Union Creek
 75. White River
 76. Yellow Creek



DRD ENF



Corps of Engineers

1. Dillon Reservoir
2. Big Darby Reservoir
3. Buck Creek Reservoir
4. Deer Creek Reservoir
5. Frazeysburg Reservoir
6. West Branch Reservoir
7. Caesar Creek Reservoir
8. Paint Creek Reservoir
9. White Oak Reservoir
10. Utica Reservoir
11. Pigeon Creek Reservoir
12. Conner Run Reservoir
13. Hugle Run Reservoir
14. Middle Branch Reservoir
15. Muddy Fork Reservoir
16. Still Fork Reservoir
17. Logan Reservoir
18. Lake Fork Reservoir
19. Lake Erie-Hudson River Canal
20. Bucyrus Reservoir
21. South Park Reservoir
22. Tinkers Creek Reservoir
23. East Fork Reservoir
24. Salt Creek Reservoir
25. Alum Creek Reservoir
26. Mill Creek Reservoir
27. Federal Creek Reservoir
28. Monday Creek Reservoir
29. Sugar Grove Reservoir
30. McLeish Reservoir

U. S. Forest Service

Wayne National Forest:
County Units:
31. Athens
32. Gallia
33. Hocking
34. Lawrence
35. Monroe
36. Perry
37. Scioto
38. Washington

U. S. Fish and Wildlife Service

39. Ottawa National Wildlife Refuge

State Parks

40. Clear Fork
41. Burr Oak
42. St. Marys
43. Hueston Woods
44. Kiser Lake
45. Stonelick
46. Cowan Lake
47. Bear Creek
48. Bedford Lake
49. Independence Dam
50. Kelly's Island
51. Buckeye
52. Harrison Lake
53. Penderon Lake
54. John Bryan
55. Salt Fork
56. Rocky Fork
57. Hocking
58. Indian Lake
59. River Styx
60. East Harbor
61. A. W. Marion
62. Pike Lake
63. Nelson-Kennedy Ledges
64. Miller Blue Hole
65. Lake Loramie
66. Portage Lake

State Forests

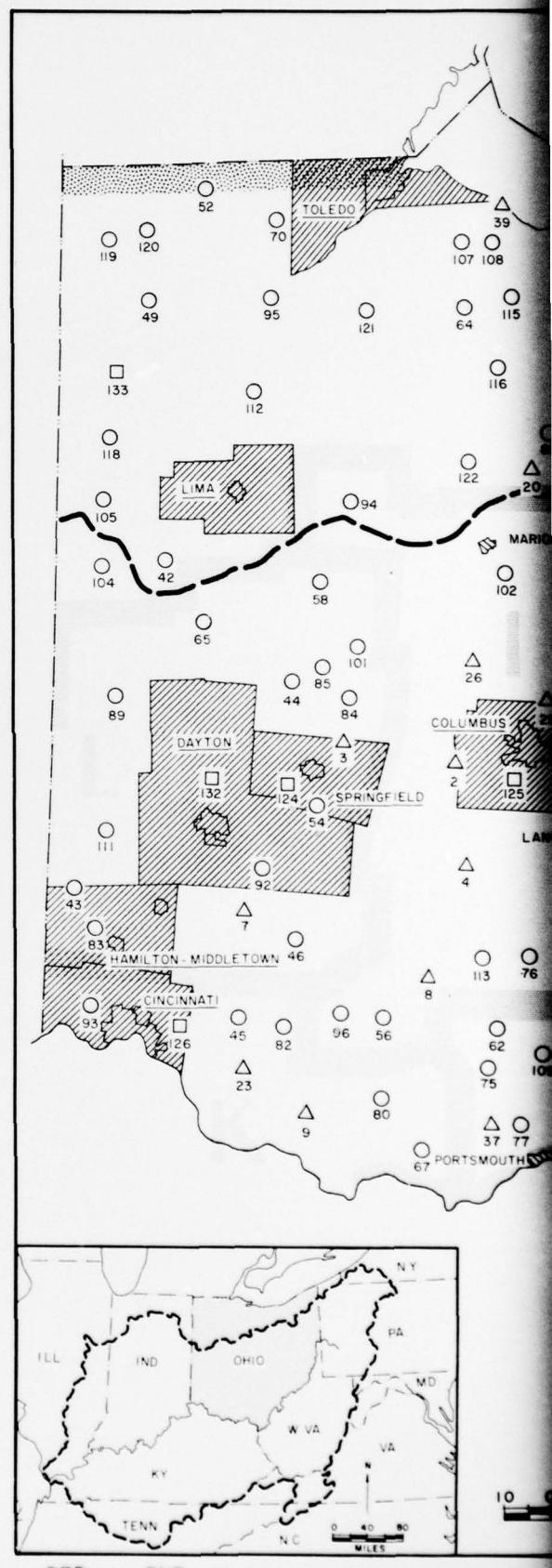
67. Brush Creek
68. Mohican
69. Yellow Creek
70. Maumee
71. Richland Furnace
72. Shade River
73. Sunfish Creek
74. Blue Creek
75. Pike
76. Scioto
77. Shawnee
78. Raccoon
79. Zaleski

State Fish and Game Areas

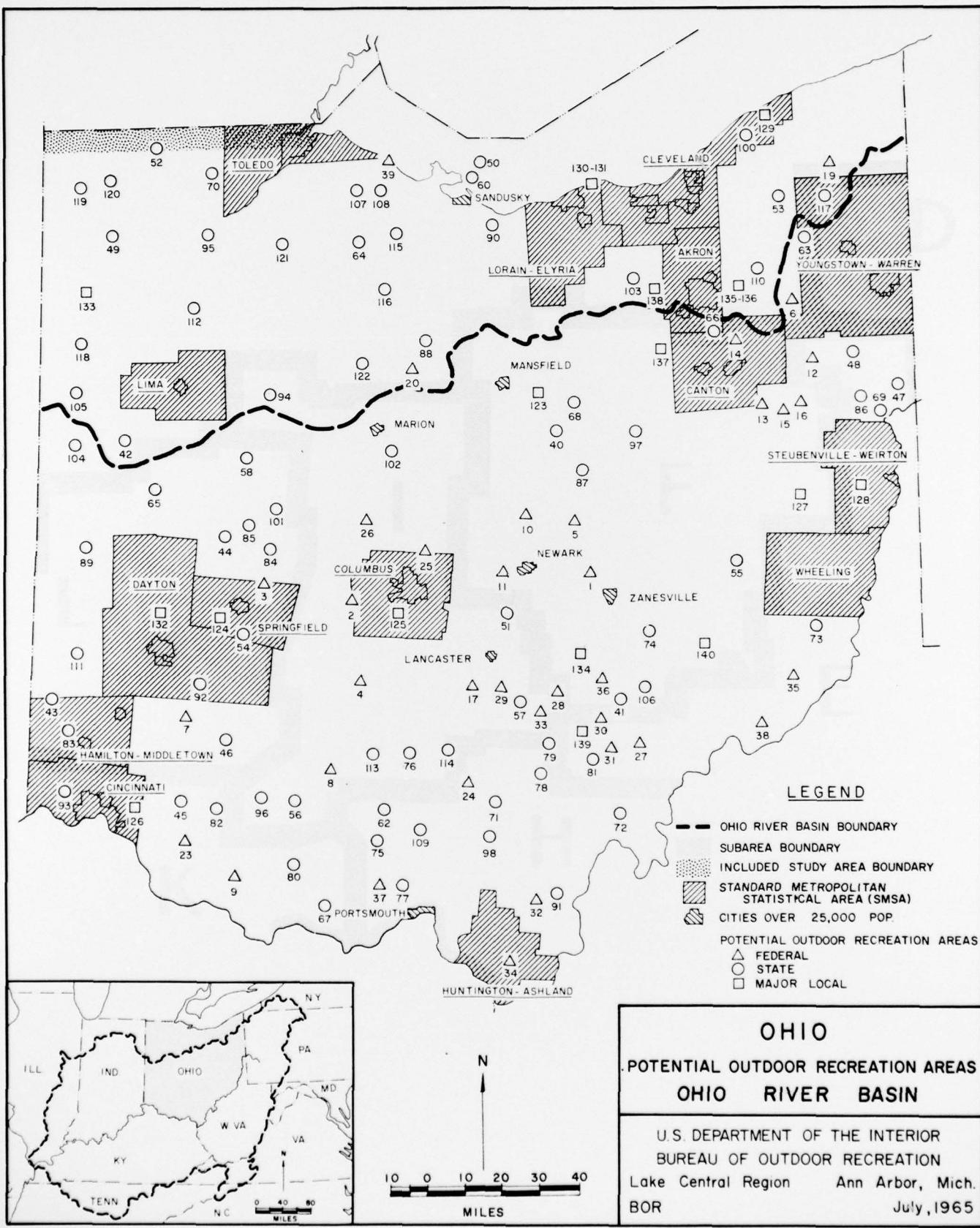
80. Tranquility Wildlife Area
81. New Area
82. Indiana Creek
83. New Area
84. New Area
85. Urban Game Farm
86. Highlandtown
87. Michigan River
88. New Area
89. Darke County
90. Resthaven
91. Tycoon Lake
92. Springvalley
93. New Area
94. New Area
95. New Area
96. Fallsville
97. New Area
98. Coopers Hollow
99. Brush Creek
100. New Natural Area
101. New Area
102. Big Island
103. Spencer Lake
104. New Area
105. St. Marys
106. Wolf Creek
107. New Area
108. New Area
109. New Area
110. New Area
111. Rush Run
112. New Area
113. New Area
114. Tar Hollow
115. New Area
116. New Area
117. Grand River
118. New Area
119. New Area
120. Beaver Creek
121. New Area
122. Killdeer

Major Local Areas

123. Charles Mill Reservoir
124. City Park - Springfield
125. City Park - Columbus
126. City Park - Cincinnati
127. Harrison Co. Reclamation Area
128. Jefferson Co. Reclamation Area
129. Lake Co. Metropolitan Park
130. Lorain Metropolitan Park
131. Lorain Metropolitan Park
132. City Park - Dayton
133. City Park - Natural Area
134. Perry Co. Reclamation Area
135. City Park - Akron
136. City Park - Akron
- Wayne County Commissioners:
137. Chippewa
- Watershed Conservation District:
138. Chippewa
139. Margaret Creek
- Ohio Department of Natural Resources:
140. West Fork Duck Creek



DRD ENF



DRD ENF

Plate 17

2

NEW YORK

Genesee State Park Commission

1. Silver Lake

Niagara Frontier State Park Commission

2. Four Mile Creek Annex
3. Reservoir Park
4. Lower Niagara State Park
5. Fort Niagara State Park
6. Wilson Tuscarora State Park
7. Golden Hill State Park

Allegany State Park Commission

8. Long Point

State Fish and Game

9. Silver Lake

PENNSYLVANIA

Corps of Engineers

10. Curwensville Reservoir
11. Allegheny Reservoir
12. Shanango Reservoir
13. Union City Reservoir
14. Judy Creek Reservoir
15. Woodcock Reservoir
16. Rubbank Creek Reservoir
17. Blanchard Reservoir

National Park Service

18. Allegheny Portage-Johnstown Flood

State Parks and Forests

19. Moraine
20. Ohiony
21. Ryerson Station
22. Prince Gallitzin
23. Yellow Creek
24. Canoe Creek
25. Octocsin
26. Buffalo Creek
27. Elk Creek
28. Mill Creek Gorge
29. Sandy Creek
30. Conemaugh Gorge
31. Sandy Creek

State Fish Commission Recreation Areas

32. Juttnut Creek
33. Tamarack Lake
34. Raystown
35. Meadow Ground

Washington Co. Planning Commission

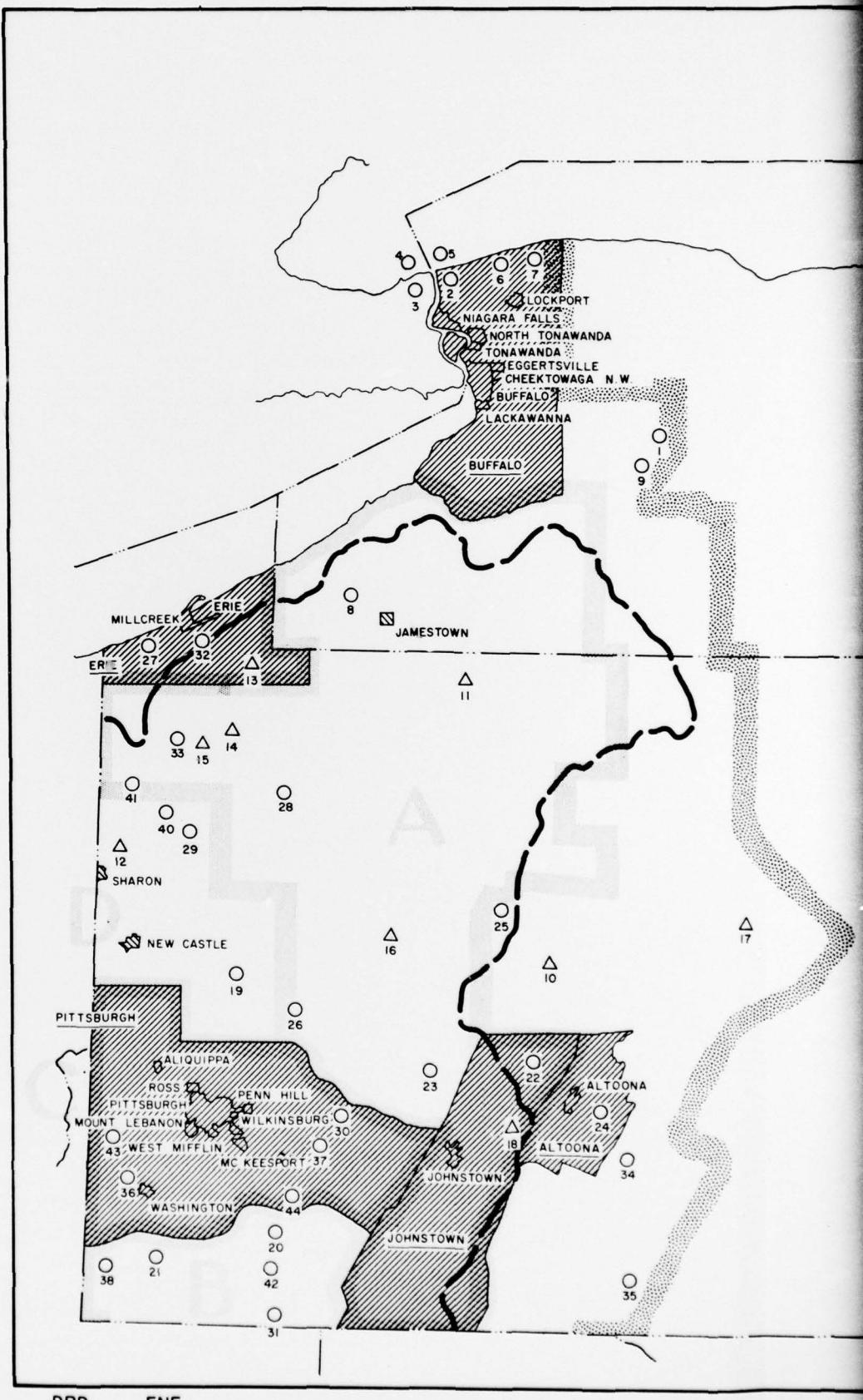
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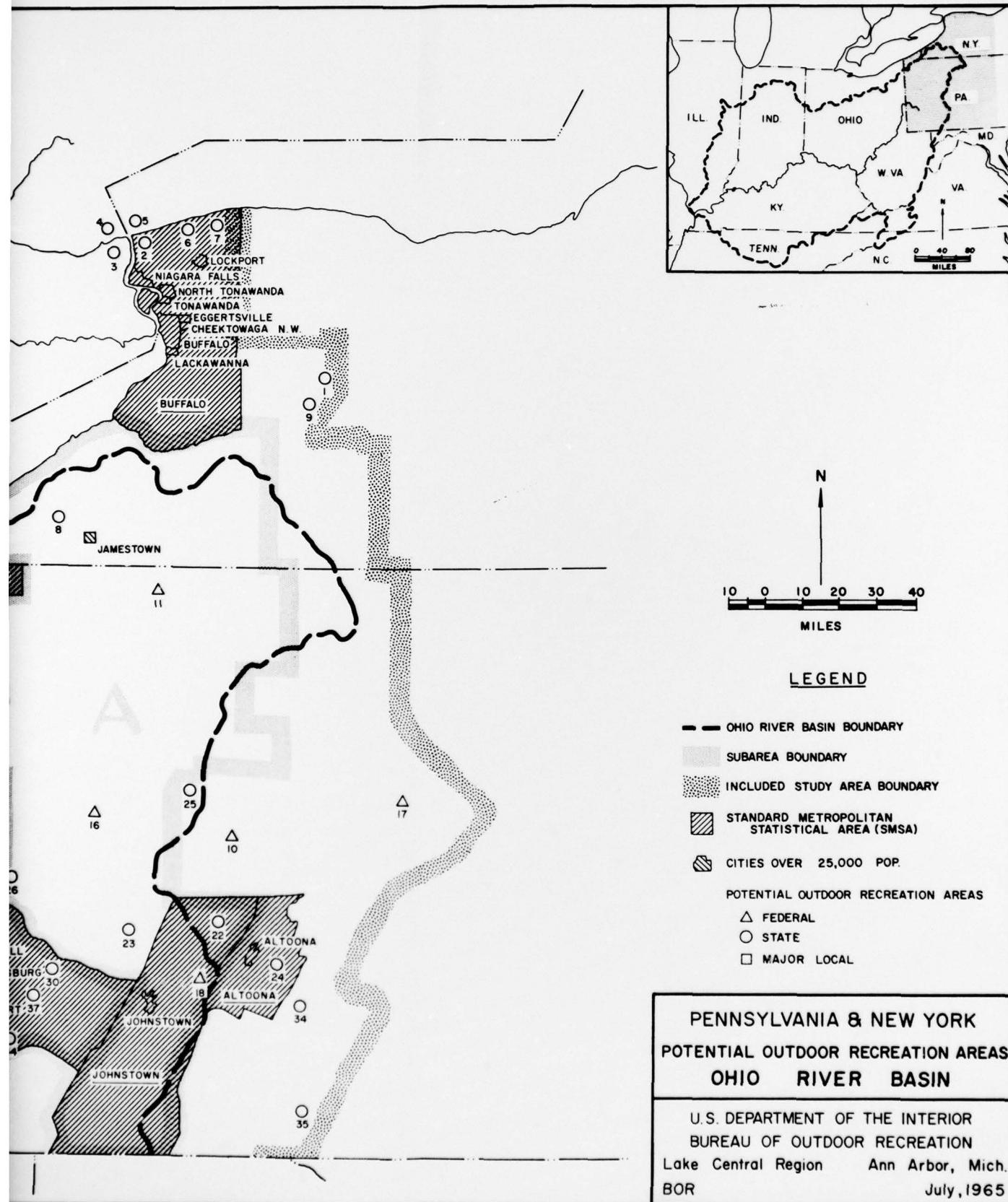
Westmoreland Co. Recreation Commission

37. Unnamed

State Watershed Program

38. Wheeling Creek
39. Haines Creek
40. Sandy Creek
41. Little Shenango
42. Juniper Creek
43. Cross Creek
44. Jacobs Creek





WEST VIRGINIA

Corps of Engineers

1. Howlesburg Reservoir
2. Stonewall Jackson Reservoir
3. Turner Lake Reservoir
4. West Fork Reservoir
5. Leading Creek Reservoir
6. Summersville Reservoir
7. East Lynn Reservoir
8. Birch Reservoir
9. Beach Fork Reservoir
10. West Fork River Reservoir
11. Justice Reservoir

State Parks and Recreation Areas

12. Canaan Valley
13. Pricketts Creek
14. Little Kanawha River
15. North Bend
16. Mill Creek
17. Big Bend
18. Lower Kanawha River
19. River Bend
21. Hawks Nest
22. Cedar Creek
23. Holly River
24. Babcock
25. Pigeon
26. Smoke Hole
27. Falls Hill
28. Twin Falls
29. Berwind Lake

State Forests

30. Coopers Rock
31. Kanawha
32. Calvin W. Price
33. Kumbabow
34. Seneca
35. Greenbrier
36. Panther
37. Camp Creek
38. Catwaylings

State Fish and Game

39. Stony River Dam
40. Pleasants Creek
41. McClinic
42. Choler Cornstalk
43. Big Ugly
44. Elk River-Precious
45. Fork Creek
46. Back Fork of Elk
47. Bluestone
48. Laurel Creek
49. Brush Creek Falls

VIRGINIA

Corps of Engineers

50. Moores Ferry Reservoir
51. John W. Flannagan Reservoir
52. North Fork Pound River Reservoir
53. Hays Reservoir
54. Gaithright & Falling Spring Reservoirs

State Game and Inland Fisheries

55. Highland Wildlife Area

Major Local Areas

56. Busted Rock
57. Blue Ridge Lake
58. Smith Mine Lake

MARYLAND

Corps of Engineers

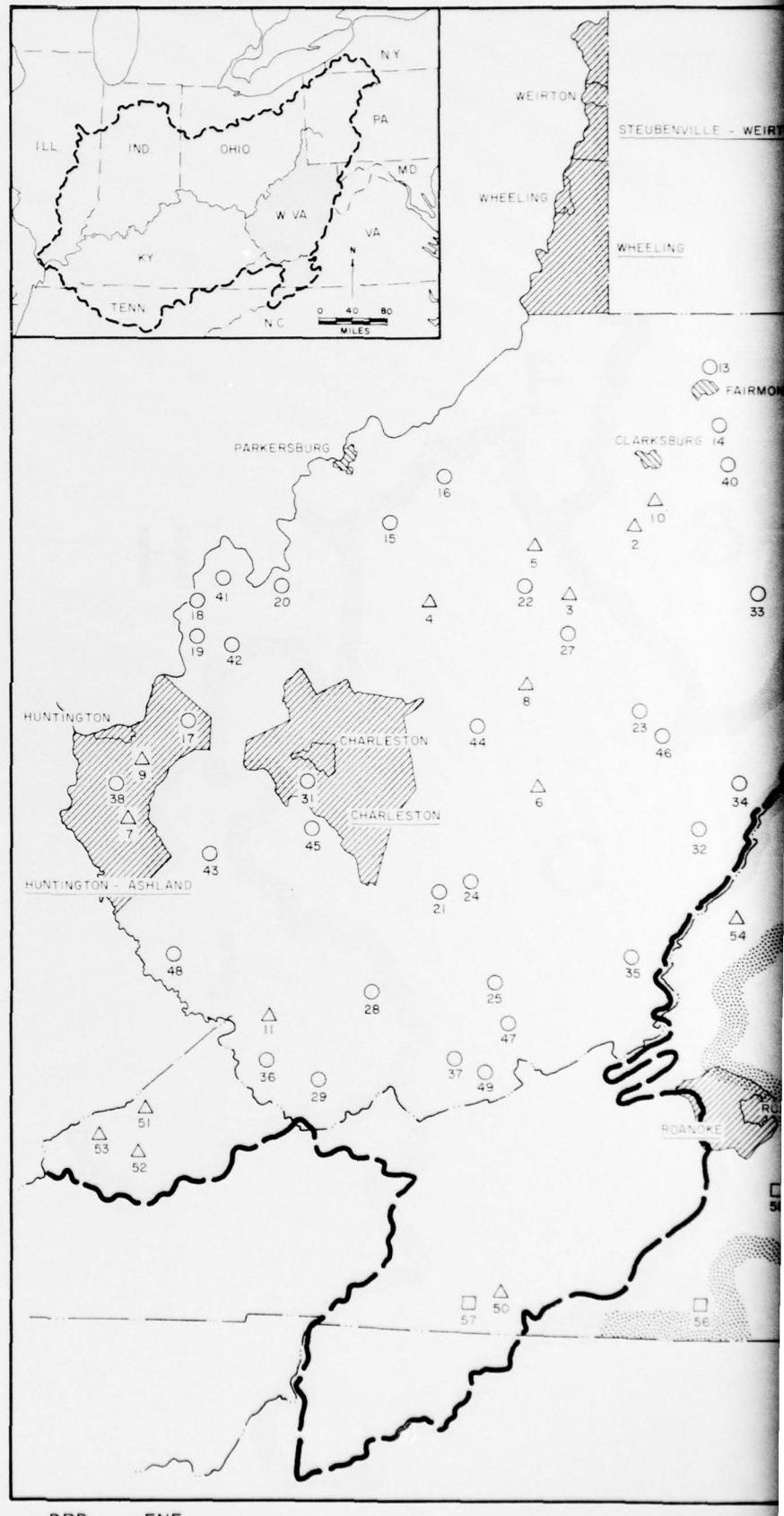
59. Bloomington Reservoir

State Park and Recreation Areas

60. New Germany
61. Don's Mountain
62. Rocky Gap

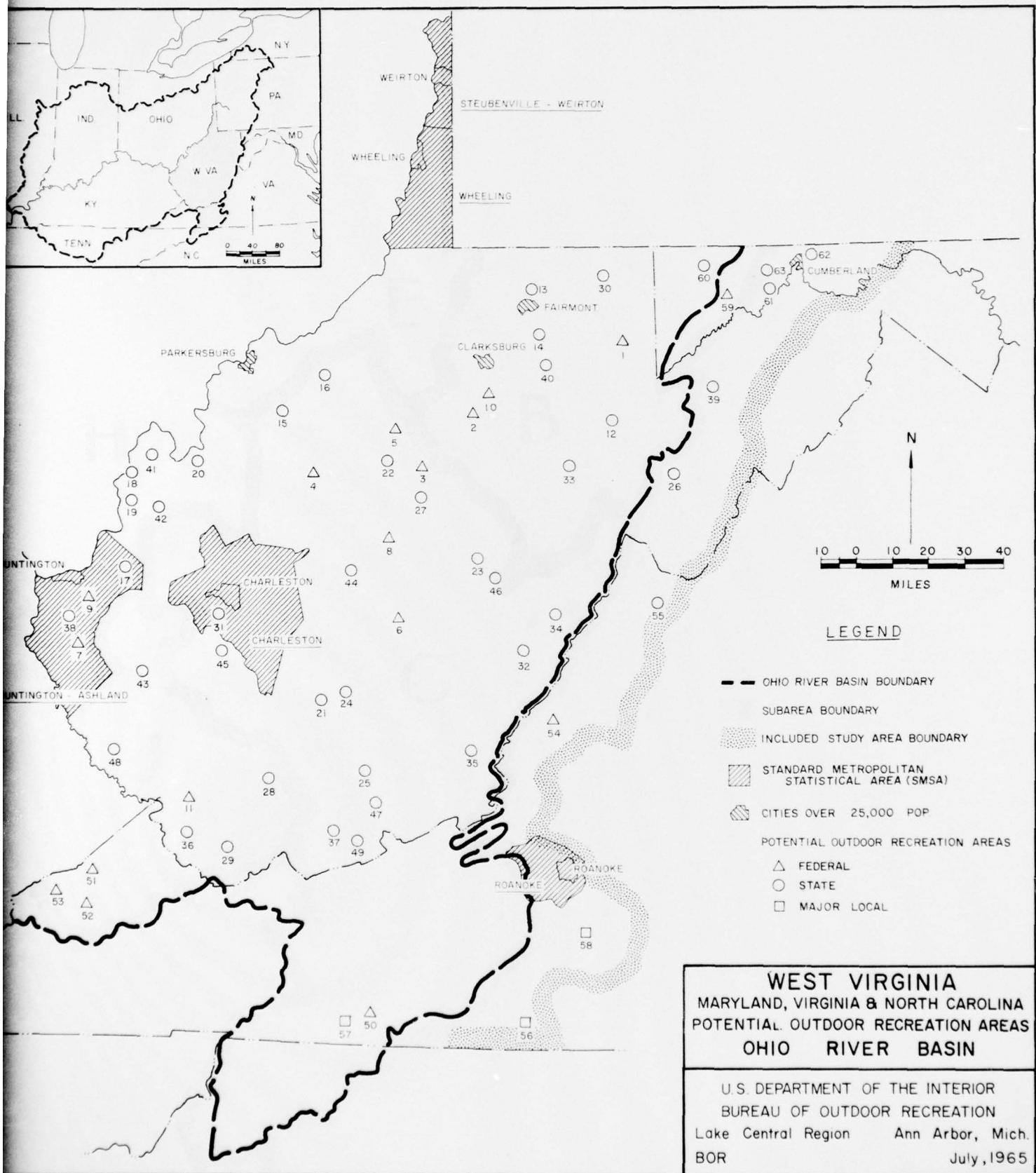
State Game and Inland Fisheries

63. Don's Mountain



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KENTUCKY

Corps of Engineers

1. Barkley Reservoir
2. Barren Reservoir
3. Big Hail Mountain Reservoir
4. Booneville Reservoir
5. Cave Run Reservoir
6. Carr Fork Reservoir
7. Celina Dam Reservoir
8. Eagle Creek Reservoir
9. Falmouth Reservoir
10. Fishtrap Reservoir
11. Grayson Reservoir
12. Green River Reservoir
13. Kinniconick Creek Reservoir
14. Laurel Reservoir
15. Nolin Reservoir
16. Paintsville Reservoir
17. Red River Reservoir
18. Rough River Reservoir
19. Taylorsville Reservoir
20. Yatesville Reservoir
21. Rockcastle Narrows Reservoir
22. Parker Branch Reservoir
23. Martins Fork Reservoir
24. Cumberland Falls Reservoir
25. Jallico Creek Reservoir

State Parks

26. Kingdom Come
27. Rough River Dam
28. Lake Malone
29. Fort Boonesborough
30. Falmouth Lake
31. General Burnside
32. Barkley Lake
33. Elizabethtown Lake
34. Unnamed Area
35. Big Lick
36. Greenbo Lake
37. Buckhorn Lake
38. Barren River

State Fish and Wildlife Areas

39. Beech Creek Lake
40. Stone Mountain
41. Twin Eagle

Major Local Areas

42. City of Lexington
43. Watershed Conservation Districts:
44. Little Kentucky River #1
45. Cypress Creek #3
46. Donelson Creek #1
47. Grassy Creek
48. Fox Creek #2
49. City of Elizabethtown
50. City of Caney Fork
51. Valley Creek #4

TENNESSEE

Corps of Engineers

1. Cordell Hull Reservoir
2. J. Percy Priest Reservoir
3. Three Island Reservoir

Tennessee Valley Authority

4. Between-the-Lakes
5. Great Falls Lake

U.S. Fish and Wildlife Service

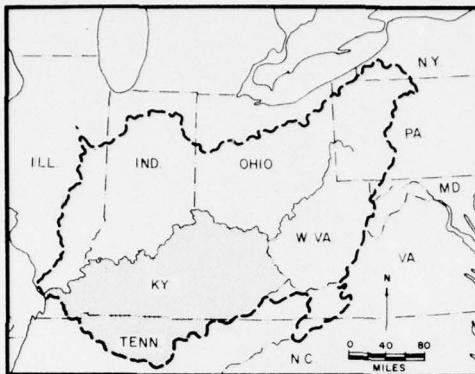
6. Cross Creek Refuge

State Parks

7. Fall Creek Falls

Major Local Areas

8. Pine Creek



LEGEND

— OHIO RIVER BASIN BOUNDARY

SUBAREA BOUNDARY

■ INCLUDED STUDY AREA BOUNDARY

■ STANDARD METROPOLITAN STATISTICAL AREA (SMSA)

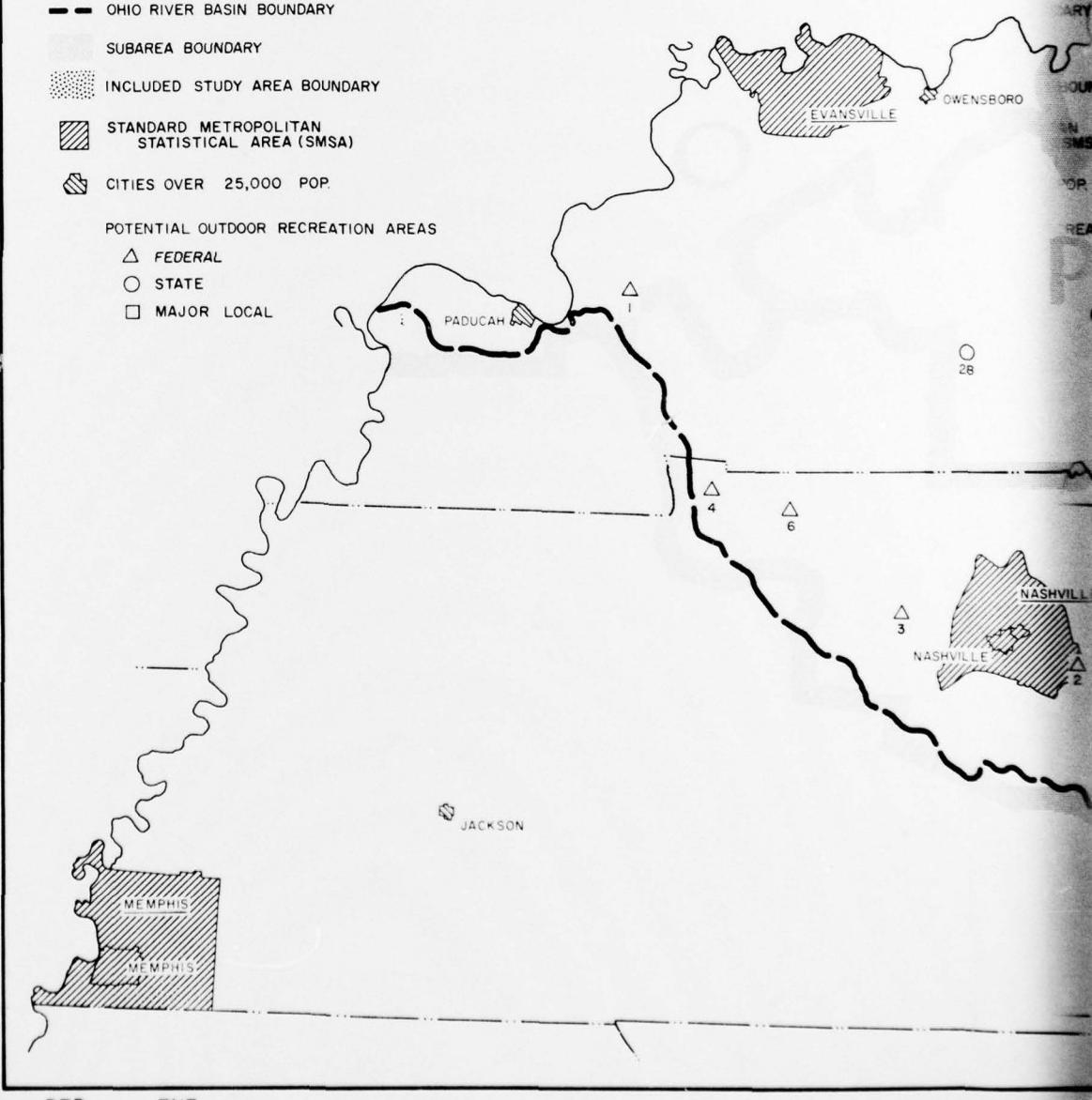
□ CITIES OVER 25,000 POP

POTENTIAL OUTDOOR RECREATION AREAS

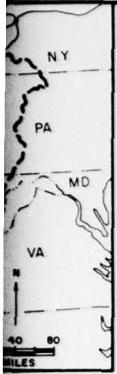
△ FEDERAL

○ STATE

□ MAJOR LOCAL



DRD ENF



DARY

TION AREAS

JACKSON

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